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Reducing Fall Recurrence in Institutionalized Elderly Residents on Narcotics

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This is to certify that the doctoral study by

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the review committee have been made.

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2019

Abstract

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MS, Walden University, 2016

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Project Submitted in Partial Fulfillment

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Abstract

Falls constitute a health care safety concern, specifically among the geriatric population institutionalized in health care facilities. From the pattern of observed falls at the project site, a discrepancy between fall prevention measures and expected outcomes was noted. Knowledge deficiency, inadequate practice skills, and insufficient organizational support were found to be the major obstacles to improving fall prevention. The purpose of this systematic literature review project was to identify evidence-based actions to reduce falls. The project was guided by Taylor's personality theory and Watson's theory of care. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses method was used to evaluate and analyze 4 of the 47 screened publications. The evidence supported 5 interventions: furthering implementation facilitators, removing barriers, improving strategies, integrating personality, and using a fall risk assessment tool. The systematic review addressed practice gaps, organizational support, and barriers to curb recurrent falls. By contributing to the improvement of individual and population health, the project might lead to a positive socioeconomic change by reducing falls and their complications.

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Dedication

To my late parents Binega Hermenegilde and Cubwa Bernadette; to my late brothers Cleophas Magorofa and Bagorikunda Theodore; to my late sisters Immaculate and Adele Sijeniyo I never saw; to my late still born brother Joseph I never saw; to my brothers Justin Sindayihebura, Barnabe Ndayikeza, and Marc Manirakiza; to my beloved wife Agnes Sabumuremyi; and to my lovely children Alain Niyungeko, Christela Niyungeko, Bertrand Niyungeko, Raoul Mukiza, Kevin Niyungeko, and Christian Noel Niyungeko. To all people in deprivation of the appropriate health care they need such as disadvantaged populations in the United States and overseas, I dedicate this work.

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The accomplishment of this doctoral project would not have been possible without the support of Dr. Courtney Nyange, the chair of the committee, Dr. Sue Bell, the second committee member, and other professionals involved in the approval process. Dr. Nyange always responded to my concerns in a timely manner and guided me through the process with patience and scientific rigor. Dr. Bell systematically analyzed my work for a thorough editing with patience and rigor. I acknowledge the invaluable contribution of each professor from day one of my graduate education and in the entire course of the doctoral formation. The integration of DNP essentials, efferent competences and values in my thought process, and nursing practice perspective resulted from cumulative and combined efforts from scholars who gradually shaped my profile. The support from the field experience coordinator and from the preceptor, Dr. Abla Awadh, was incommensurable. The realization of three practicum projects on diabetes management including one on staff education strategies for prevention of early morning hypoglycemia, another on management of Type 2 diabetes mellitus by use of advanced technology and interdisciplinary consults, and a third one on high technology supported Type 1 diabetes management in an interdisciplinary context were eye openers for professional and individual growth. With the acquired conceptual formation, developed leadership competences, and an incorporated culture of evidence-based practice, I will be able to contribute to the advancement of nursing practice and positive social change.

To all of you, who, in a way or another enabled me to reach this stage, including my wife and children for their undeterred patience, I extend my thanks.

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Section 1: Nature of the Project

Introduction

Falls constitute a critical safety challenge in health care. Although falls are preventable, their prevalence and resulting mortality rates have far-reaching implications on individuals, families, communities, and the nation. Falls are the leading cause of deaths from unintentional injuries (Burns & Kakara, 2018). In the United States, injurious falls are the seventh leading cause of death (Burns & Kakara, 2018). Statistically, 40% of fatal injuries in the elderly population are attributed to falls (Walker, Armstrong, & Gordon, 2015). In other terms, approximately one in three injurious falls results in death. For safety purposes, falls are recognized among the top three reportable sentinel events, and fall prevention is part of national health priorities in the United States (Burns & Kakara, 2018). Furthermore, meticulous epidemiological studies on falls in patients 65 years of age and older have revealed that every nursing home older adult resident experienced at least 1.7 falls every year (Cameron, 2018). Further research on the same older adult population indicated that fall incidents increased by 3% per year from 2007 to 2016, with a yearly death rate gradient of 3.9% per year in the age category of persons 85 years of age and older (Burns & Kakara, 2018). The U.S. population aged 85 and beyond will reach 8.9 million in year 2030, and this population will constitute a bigger liability for families, communities, and the nation (Burns & Kakara, 2018). In a study on the impact of falls and fall prevention strategies in nursing homes, researchers reported that 36% of hip fractures resulted in death within 6 months (Burns & Kakara, 2018). Financially, nonfatal hip injury falls

inflicted a cost of $29,000 per case upon discharge, and the financial negative impact has affected populations in diverse states differently (Zubkoff et al., 2018). For example, the state of Virginia counts among 30 states that experienced a yearly fall death rate increase of at least 3.1% in recent past years (Burns & Kakara, 2018). Contributing factors to fall incidents include but are not limited to age-related physical decline, ongoing disease processes, cognitive impairments, inadequate fall prevention strategies, and medications such as narcotics and psychotropic drugs (Eriksson, Hildingh, Buer, & Thulesius, 2016).

The effect of medications as a fall risk factor is noteworthy. A study on the correlation between the use of opioids and the occurrence of fractures from falls indicated that patients receiving opioids have the highest odds of experiencing postwithdrawal injurious falls (Aparasu & Chatterjee, 2014). The risk is even higher in nursing home residents over 65 years old in pain due to declining gait, balance, muscle strength, and other aspects of physical and mental status deterioration (Aparasu & Chatterjee, 2014). Unmanaged unsteady posture and musculoskeletal weakness put elderly patients at risk for falls (Dhargave & Sendhilkumar, 2016). Healthwise, consequences of falls on quality of life for older adult nursing homes' residents, families, and community are also enormous (Aparasu & Chatterjee, 2014). In fact, fall experience instills fear for further falls and leads to withdrawal from activities, resulting in a deteriorating quality of life (Zubkoff et al., 2018). With such a concerning situation, developing effective fall prevention and implementation strategies was found to be of central and beneficial importance in virtue of the multiplicity and complexity of risk

factors and consequences of falls in elderly nursing home residents on opioids and psychotropic medications.

Conceptually, the focus problem for this doctoral project was the importance of maintaining safety as one of the core indicators of quality care. This doctoral project encompassed a literature review of evidence addressing observed practice gaps in fall prevention and recommended evidence-based remedies applicable at the frontline and organizational level. In the social change perspective, the implementation of suggestions was thought to contribute to safety, respite, enhancement, and financial cost reduction for more investments in the amelioration of other aspects of clinical care. As stated earlier, falls are the leading cause of injury in elderly residents and instill fear of additional falls and result in activity restriction (Walker et al., 2015). Given that support systems were inconsistent with expected outcomes, this project brought an added value in terms of improvement processes meant to lead to reduced falls, decreased injuries, minimized deaths, and alleviated social and financial burdens.

Problem Statement

At the project site, instituted fall prevention mechanisms were not reinforced by adequate support at organizational level, rendering fall reduction endeavors critically challenging in elderly residents experiencing one to two falls on the three units of the nursing home (findings from observation). These incidents have exerted a multidimensional impact on nursing home residents, families, health care professionals, and the local community (Teresi et al., 2013). Besides the adverse impact on residents, falls have interfered with the workflow of the staff and have increased the risk for

practice errors from stress and burnout (Teresi et al., 2013). As evidenced by research, stress was determined to be a critical factor interfering with motivation for work and leading to adverse outcomes (Barbe, Kimble, & Rubenstein, 2018). Incontestably, stressful working conditions compromise attention and quality of care, specifically in residents' health risks, and interfere with other aspects of care (Holland, Allen, & Cooper, 2013). Another noted drawback from falls was the waste of the time allocated to other aspects of care on post fall management (Sterke, Panneman, Erasmus, & Pollinder, 2018).

The financial implications of falls were also evaluated in terms of time spent on fall management. A study on handling fall events showed that a nurse whose patient experienced a fall spent 1 extra hour to manage a noninjurious fall against 132 on an injurious one with fracture (Sterke et al., 2018). Therefore, addressing falls in elderly geriatric residents on narcotics and psychotropic medications was found to be consistent with the pursuit of safety and quality of care at the project site. The facility's mission statement emphasizes striving for the best outcomes for residents, the best customer service, and improved job satisfaction for employees. Research on the financial impact of falls indicated that related annual expenses ranged between $54,000 and $112,000, and this money was exclusively spent on the treatment of subsequent injuries (Teresi et al., 2013). Furthermore, long-term institutions have incurred a pecuniary loss of $31 billion in a context whereby one older adult experienced a fall every second (Teresi et al., 2013). Based on observed practice loopholes and subsequent drawbacks, the problem to address at the project site was formulated as follows: Institutionalized

geriatric residents on narcotics and psychotropic drugs experienced recurrent injurious falls; without a well implemented evidence-based prevention plan, fall-related physical, psychosocial, and financial harm can degenerate and lead to more extensive and adverse outcomes on residents, families, and the community.

Purpose of the Project

The focus of the project was the reduction of falls among elderly residents on narcotics and psychotropic medications in a long-term care facility. In fact, researchers have determined that falls are often injurious and mostly degenerate into either disabling or fatal clinical outcomes (Burns & Kakara, 2018). While intelligent alarms were regularly used to prevent falls at the project site, this strategy did not yield the reduced falls as expected. Call lights were also set up within high fall-risk residents' reach to alert nurses and ancillary personnel about their immediate needs at their convenience. Regrettably, the use of call lights did not allow for satisfaction of needs for aging residents whose memory, mental status, and physical ability to operate a call light were further compromised by comorbidities and effects of medications. Furthermore, research on the effects of narcotics and psychotropic medications on musculoskeletal function demonstrated that patients on narcotics are at high risk for falls (Aparasu & Chatterjee, 2014). Because narcotics and antipsychotics predispose long-term care residents to falls, deprescribing this category of drugs proved to contribute to fall incidence reduction (Marvin et al., 2017). The purpose of the project was, therefore, to develop a set of evidence-based recommendations intended for developing the ability and insights for conscientious and sustainable fall prevention

interventions for fall reduction. Generating recommendations for an improved organizational support system and addressing gaps hampering a full implementation of fall prevention strategies was also part of the purpose. In a study on fall prevention, Sterke et al. (2018) pointed out the significance of support systems in correlation with safety outcomes. As mentioned previously, the meaningful practice gap addressed was the inconsistency between instituted fall prevention strategies and the actual intervention outcomes. Indeed, that discrepancy between strategies and safety outcomes was noted at the project site. For instance, alarm systems were used, and nurses responded to those alarms. However, fall reduction was not achieved in the same direction. This inconsistency was likely a result of support systems' limitations and the nonpurposeful character of their interventions. Another example was the occurrence of falls in patients under direct supervision near nursing stations. Thus, the project was meant to address that incoherence through recommendation of evidence triggering motivation for compliance with fall prevention implementation, best practice, enhanced support systems, and purposeful care.

The practice-focused question that guided the project was framed as follows: What evidence-based fall prevention strategies could be recommended to address recurrent incidences of falls in nursing home residents who have reached 65 years and more and are medicated with narcotics and psychotropic drugs? As stipulated in the practice-focused question, the addressed practice gap was the ineffectiveness of ongoing fall prevention strategies such as promptness of response to alarm alert, consistent monitoring of high-risk patients, and adequacy of managerial support system,

appropriateness of fall assessment and management interventions. To address the practice-focused questions, I proposed evidence-based strategies allowing the project site to correct ongoing ineffective fall prevention interventions, inadequate support system, and unsatisfactory fall prevention measures for implementation. Indifference about observed practice gaps could result in more devastating consequences. Research on causes of falls revealed that factors contributing to falls could be intrinsic and extrinsic (Dhargave & Sendhikumar, 2016). Endogenous factors were evidenced to include mental alterations such as delusions, hallucinations, sundown processes, and musculoskeletal decline(Dhargave & Sendhikumar, 2016). Exogenous factors are environmental features predisposing to falls such as light, clutter, noise, and more (Dhargave & Sendhilkumar, 2016). At the project site, inadequate support system was manifested by poor nurse-resident ratios, inadequate equipment, and knowledge skills limitations about fall management processes and rationale.

Knowledge limitation about evidence-based practice was determined to infringe the quality of rounding based on the evidenced correlation between knowledge and accountability (Teresi et al., 2013). In fact, a literature review through the Cochrane Database of Systematic Reviews indicated that the lack of training in fall risks management for both staff and residents constituted a serious obstacle for fall prevention (Teresi et al., 2013). Because of poor monitoring, most of the falls were not witnessed. Succinctly, in this project, I purported to suggest evidence-based practices enabling for achievement of meaningful implementation, removal of obstacles to fall prevention, fostering best practice, and enhancement of support system processes.

Nature of the Doctoral Project

Through this project, I sought to address the ineffectiveness of multilevel fall prevention strategies and implementation. The approach of choice being the identification of gaps and corrective evidence, the project essentially consisted of a literature review for the identification of available evidence addressing observed practice gaps. In addition to reviewing literature, I explored benchmarked practices as part of evidence-based alternatives to fall prevention and reduction. Additionally, thoughts were processed on organizational opportunities for improvement of fall prevention strategies and implementation. In fact, research findings on fall prevention underscored the importance of understanding systemic gaps affecting safety (Sterke et al., 2018). Corollary fall prevention effectiveness was thought to be optimally achieved when corrective efforts are directed to management systems rather than to scattered components of a system (Sterke et al., 2018). Expectedly, the implementation of adjustments at diverse levels of the system are thought to further motivation for purposeful actions (Sterke et al., 2018).

The project was an evidence-based contribution meant to bring about support system positive modifications for fall prevention improvement and solutions to direct care practice gaps. As an evidence-based answer to practice shortcomings and support system deficiency, the project's framework broadened its scope beyond direct care causal agents and embraced systemic changes susceptible of contributing to minimize risks for fall. Thus, the potential of the project to address the issue of recurrent falls was found to be embedded in the possibility of gathering relevant and transferable evidence.

In their research on the translation of evidence into nursing and health care, White, Dudley-Brown, and Terhaar (2016) pinpointed the pertinence of building nursing practice on most current and best available evidence rather than solely relying on practice experience insights. In this framework, available evidence that supported recommendations for fall prevention strategies was gathered from literature and meticulously appraised.

Significance

Implementing evidence-based fall prevention strategies was aimed at positively impacting patients, families' health care professionals, ancillary personnel, and all other agents involved in patient care. In their theory on transferring evidence into practice in long-term care, Yun & Choi (2019) highlighted the magnitude of the person-centered care paradigm and emphasized the advantages of addressing residents' needs. With achieved fall rates reduction, nursing professionals would be in a better position to comprehend benefits of evidence-based practice. This conceptual change was intended to enhance the understanding of the interplay between patient care and evidence-based practice (Teresi et al., 2013). Thus, the significance of the project in nursing practice was underpinned in the added value to safety, quality, and potential contribution to the enhancement of collaborative practice towards a meaningful impact across fall prevention stakeholders.

Under that rubric, a recommendation of innovative fall prevention strategies was believed to contribute to positive social change by various means. As stated in previous paragraphs, negative effects of falls on nursing home residents, their families, the

hosting facility, and the community cannot be overstressed. Injuries resulting from falls may be fatal or may forcefully increase the financial and social burden of parties involved in the care of high fall risk residents (Teresi et al., 2013). Undoubtedly, those resources could be used in quality of life improvement for other individuals, family members, and communities or for betterment services in other health care institutions. Therefore, suggested improvement interventions were meant to minimize risks for falls and subsequent consequences.

Practically, targeted changes were intended to contribute to the reduction of injurious falls and to the alleviation of subsequent functional, financial, and social burden. Supposedly achieved safety outcomes are not only thought to be beneficial to residents but also to contribute to improve community's health and allow conscientious participation in improved fall reduction programs. For example, a study on benefits of fall reductions in 15 nursing homes demonstrated a net financial gain for a reduction of falls by 30% ranging between $44,000 and $102,000 (Teresi et al., 2013). Similarly, fall reduction may lead to the improvement of quality of life besides the reduction of costs (Bökberg, Ahlström, & Karlsson, 2017). Findings from another study on the epidemiology of falls and their effect on quality of life in New York nursing long-term care facilities revealed that residents experienced a fall rate ranging from 34% to 67% (Teresi et al., 2013). Statistically, 10% to 20% of these falls were injurious and led to nursing home residents' recurrent hospitalizations (Teresi et al., 2013).

Regarding social impact, this project aligns with Walden University's mission of social change. In fact, as underscored in published annual reports, Walden University's

mission for social change always emphasizes the significance of translating researched evidence into impactful solutions to social problems. Because changes related to falls reduction were found to impact system processes, the probability of practice errors from staff stress due to fall events was expected to be minimized. Therefore, professionals were thought to espouse the culture evidence-based practice in their routine of care. According to research, one of benefits of working in a safe environment is the alleviation of job-related stress and implicit job dissatisfaction (Bliese, Edwards, & Sonnentag, 2017). Therefore, resolving that double negative impact was expected to result in improved quality of care and enhanced safety.

Summary

Falls have always constituted a serious issue among nursing home residents who have reached at least 65 years of age, particularly those on narcotic and psychotropic medications. Fall events affect residents' quality of life and have inflicted exorbitant financial burdens for centuries. Falls have also negatively influenced nurses' job performance and community wellness over the years. This doctoral project was designed as an evidence-based answer to the discrepancy between instituted fall prevention strategies and their outcomes (recurrent falls) at the project site. Evidence-based recommendations for better fall prevention practice and enhanced management support system were expected to help with the achievement of purposeful and more meaningful interventions on one hand and full and appropriate implementation of fall prevention strategies on the other. The significance of the project resided in the achievable reduction of fall recurrence and of health care financial costs at all levels.

Furthermore, inputs from the project are meant to contribute to the alleviation of family burdens and improved residents' quality of life. In Section 2, I discuss the background and context for the project.

Section 2: Background and Context

Introduction

The practice problem consisted of the inadequate fall prevention strategies and support system limitations associated with interventional gaps accounting for recurrent falls with a multidimensional adverse impact. Therefore, the aim was to propose evidence-based practice recommendations for direct care and institutional support to achieve tangible fall reduction in geriatric nursing home residents on narcotic and psychotropic medications. In principle, evidence-based practice is informed by theory and knowledge and is driven by motivation for improved patient outcomes (White et al., 2016). Therefore, prevention practice inconsistent with theories or models underscoring conscientious and holistic care would permanently yield outcomes in contradiction with expectations. In a study on the significance of purposeful hourly rounding, Tucker et al. (2012) realized that new fall prevention interventions contributed to effective reduction of falls but that the gains did not last more than a year. Potentially, a gap in theoretical and knowledge-based basics motivating conscientious practice was likely to be the root cause of the noted lack of sustainability. As already mentioned, the purpose of the project was to develop a set of evidence-based recommendations based on the literature review and was intended to enhance conscientious interventions and provision of sustained organizational support for optimal fall reduction because successful implementation of fall prevention strategies was determined to be a result of effective staff education.

Safety and quality of care generally draw on theoretical concepts delineated in the four concepts of the nursing meta-paradigm. Those concepts consist of person, health, environment, and nursing care (Punjani, 2013). As referenced in the philosophy of care, theory confers a meaning to nursing practice as a dynamic profession (Punjani, 2013). For this reason, envisioned fall prevention implementation strategies were articulated on holism. This concept encompasses the physical and emotional person, the environment as an extrinsic factor, the context or setting (another extrinsic factor), and characteristics of provided care (Punjani, 2013). In this framework, researchers explored institutional system components influencing fall prevention strategies and recommended alternatives for optimal outcomes (Punjani, 2013). Moreover, theoretical bases underpinning the significance of the human component of fall prevention processes were thought to be reflected in recommendations. (Punjani, 2013).

This section addressed theoretical underpinnings and guiding models sustaining recommended solutions to identified practice gaps. Moreover, relevance of those solutions to fundamentals of nursing practice are demonstrated under this title. Under the same rubric, local context and background, and project team roles were clarified along with the meaning of key terms.

Concepts, Models, and Theories

Conceptual support for the doctoral project on fall prevention required a clear and thorough understanding of fall risk concepts. The chosen theory to support recommended changes for fall reduction was Taylor's personality theory. In fact, constructs pertaining to this theory allowed for an elaborate understanding of processes

related to fall risks and to the aging resident's response to that propensity (Kloseck, Crilly, & Gibson, 2008). This theory was originally designated to guide practice in clinical psychology. Later, the theory encompassed experimental and experiential psychology (Taylor, 2009). As time went on, personality theory embraced the domain of health care. Interestingly, both theoretical versions held in common a deep understanding of the person as the *sine qua non* condition to understanding behavioral forces driving propensity for falls (Taylor, 2009). Applied to health care, Taylor's personality theory postulates that the aging body and mind influence physical, cognitive, and mental processes affecting propensity for falls (as cited in Kloseck et al., 2008). Particularly, dementia was found to be the most common mental risk factor due to multiple cognitive and neurological impairments associated with mental decline (Kloseck et al., 2008). Taylor's personality theory also underscored the significance of personality traits in the concept of fall risks in aging residents. According to the theory, personal action constructs and self-regulation are two other concepts to ponder when connecting the notion of fall risk to the response to that risk (Kloseck et al., 2008). Taylor's personality theory also indicated that as a person ages, goals, tasks of interest, risk-taking propensity, and both physical and emotional self-regulatory processes change (Kloseck et al., 2008). This theory also underscored the direct positive correlation between fall history, childhood behaviors, and fall risks in old age (Kloseck et al., 2008). Furthermore, the theory postulated that the behavioral extent of openness critically influences fall propensity (Kloseck et al., 2008). Precisely, introvert aging residents tend to be reluctant to activity to minimize risks for fall while extrovert-aging

residents keep up their activity level to maintain independence and do not care about fall risks (Kloseck et al., 2008).

The other theory selected to inform fall reduction interventions was Watson's theory of care. This theory hypothesizes that there is a human component in the nursing care dynamic process and that the human dimension influences nursing practice (Pajnkihar, McKenna, Štiglic, & Vrbnjak, 2017). Ipso facto, care should involve the whole person (Pajnkihar, McKenna, Štiglic, & Vrbnjak, 2017). Unlike Taylor's personality theory, Watson's theory of care postulates that individual and interpersonal interactions play a significant role in fall risk prevention compared to those from an isolated person (Pajnkihar et al., 2017). The rationale for this theory underlies in the opportunity for undivided attention that characterizes holistic care. Addressing the whole person's needs therefore contribute to minimize the probability for falls (Pajnkihar et al., 2017). In fact, both Taylor's and Watson's theories emphasize the significance of the human component in the concept of care and the environmental factors because they affect the human in a way or another. Both theories support a nursing practice that values conscientious and purposeful interventions and proactive institutional support systems. One of the conceptual frameworks underpinning Taylor's and Watson's theories is the central benefit model. This model is built on the demonstrated fall reduction resulting more from improved cognitive and plastic function than hypothetical physical conditions through planned training exercise (Liu-Ambrose, Nagamatsu, Hsu & Bolandzadeh., 2013). Findings from a randomized control study on fall prevention indicated that a fall reduction of 47% was achieved after

targeted skilled activities involving older adults with history of multiple falls but did not yield significant improvement of physical conditions (Liu-Ambrose et al., 2013). This outcome was found to be a result of improved plasticity of the neural network in cerebral regions responsible for selective attention and conflict resolution (Liu-Ambrose et al., 2013). Findings from another randomized controlled study indicated that improved selective attention and conflict resolution process were associated with increased gait speed and stability in older adults who underwent aerobic and resistance training compared to the untrained group (Liu-Ambrose et al., 2013). Furthermore, nonmotor training skills on dual task resulted in improved balance and mobility compared to controlled group, which means that the achieved gait stability was less a result of the sole physical activity (Liu-Ambrose et al., 2013).

The rationale for the central benefit model lays in the fact that improved cognitive function (attention and conflict resolution or judgement processes) leads to improved gait. Gait speed metrics showed a significant predictor of injurious falls and mortality (Liu-Ambrose et al., 2013). In practice, mainstreaming assessment of cognitive processes related to selective attention, conflict resolution, and dual task function ability is an important clinical implication of central benefit model. In the same logic, a guiding model outlining intrinsic and extrinsic factors was evidenced to be equally important. Specifically, patient and staff training were found to significantly contribute to fall reduction compared to processes involving only surveyors (Teresi et al., 2013). Watson’s theory of care emphasizes effective and conscientious interventions articulated on mastery of intrinsic and extrinsic factors.

Relevance to Nursing Practice

Falls in geriatric population aged 65 and older constitute a critical issue in nursing homes. Although the implementation of general evidence-based fall prevention strategies contributes to the reduction of falls, addressing identified highest risks separately yields better results (Sergio-Martinez, Cancela, & Varela, 2016). In fact, research indicated that dementia is the leading fall risk factor over other cognitive impairments, depression, effects of medications, comorbid functional disabilities, and behavioral abnormalities (Sergio-Martinez et al., 2016). In fact, 60% of patients with dementia and other cognitive abnormalities experience at least one fall yearly (Sergio-Martinez et al., 2016). This doctoral project brings in recommendations emphasizing conscientious fall reduction interventions and consistent managerial support as an added value to existing prevention strategies.

For the DNP project, institutionalized residents were targeted because of their high risk for falls compared to community dwellers who are less fragile, functionally less challenged and cognitively or mentally healthier (Sergio-Martinez et al., 2016). Strategies instituted to transit from automated to conscientious and supportive approach of care focused on evidence-based interventions.

For example, purposeful hourly rounding was found to be the best practice approach to reduce falls, acquired pressure ulcers, improve patient satisfaction, improve environmental safety, reduce the frequency of call lights, and enhance the overall work efficiency (Sherrod, Brown, Vroom, & Sullivan, 2012). Both rounding counts, and the implementation tool served as the guiding map for purposeful rounding. During rounds, a

strong emphasis was put on patient education on the rounding program benefits, and on 5 "P's". The assessment and a survey on patient satisfaction encompassing courtesy of the nurses, nurse's promptness response to patients' needs, attention to special needs, consistency of communication, responsiveness to pain and quality of pain control (Sherrod et al., 2012). Therefore, recommendations were to include evidenced-based propositions to purposeful interventions' barriers removal.

In that perspective, the Institute for Healthcare Improvement validated purposeful and timely nursing rounds as one of the best evidence-based practice strategies for fall prevention and enhanced patient satisfaction (Daniel, 2016). In effect, the use of a protocol for hourly rounds and staff education coupled with system support led to a reduction of fall rates by 50% and to increased patient satisfaction scores (Daniel, 2016).

In that matter, the expected gain in advancement in nursing practice was translated in the application of proactive strategies expected to curb the increase of effects of risk factors. Research on fall prevention in health care settings indicated that prevention measures were effective when risk factors and their potential to induce a fall were clearly identified and when adopted strategies were addressed specifically instead of implementing general protocols (Sherrod et al., 2012). For instance, frontline staff was expected to achieve fall reduction without adequate fall prevention knowledge and skills. In that logic, recommendations for strategies for enhancement of staff capacity-building in relation to the rationale for the fall reduction strategies and skills were found to be pertinent. Of note, provision of adequate fall prevention supplies including virtual reality training equipment for high risk but physically and cognitively functional residents was

thought to also contribute to reduce falls. A study on virtual reality training for over 65 older patients for 30 days evidenced an achievement of significant fall risks reduction resulting from improved gait, stance and balance although there was no gain achieved in muscle strength (Kamińska et al., 2018).

Local Background and Context

This DNP project was focused on evidence-based strategies for improved prevention in nursing home residents over age 65 who were under treatment with narcotic and antipsychotic medications and experiencing recurrent falls. The facility is established in Virginia and has 180-beds and combines skilled and long-term care. The institution also served residents with mental disease and those experiencing acute to chronic pain, therefore warranting administration of psychotropic medications and opioids. Those patients experienced frequent falls despite fall prevention strategies in place such as alarm alerts, hourly rounding, fall risk assessment and management protocols. The facility staff has provided health and rehabilitation services for 36 years and was committed to promote recovery of health, strength, and independence upon discharge. Usually, the institution admitted patients from local and surrounding cities and counties and patients from hospitals or other rehabilitation centers. The outstanding motive of prioritizing evidence-based recommendation was that besides the recurrence, most of falls are injurious and strategies in place were not effective. Therefore, recommending evidence-based interventions to reduce falls in the geriatric population was paramount. Furthermore, with the declining income, undertaking measures contributing to lessen the burden from injurious falls could contribute to improve community wellness whereby

8.3% of the population lived below the poverty line. (DataUSA, n.d). Endeavors to reduce falls aligned with the institution's mission articulated on caring for and caring about patients through ideal clinical expertise, individualized therapy services and compassionate care by accountable staff members.

Clarification of Terms

Central benefits model of physical exercise: Clarifies the actual mechanism by which physical exercise contributes to falls reduction. In contrast to the belief that enhanced muscle strength, improved gait, and a steadier balance directly contribute to fall reduction, improved neurophysiologic connections enhancing cognitive and purposeful activity account for improved musculoskeletal gains and reduced falls (Liu-Ambrose et al., 2013).

Executive function processes: This concept relates to intentional mental processes that enable an individual to plan, focus attention, remember instructions, and successfully handle multiple tasks (Liu-Ambrose et al., 2013).

Personal action constructs: Personal action constructs refer to the specific action-oriented personality process and included personalized motivational concepts (Fox &Hookar, 2015). Examples include developmental tasks, goals, personal projects, and possible identities. Those aspects are influenced by the modifiable factors such as social role and non-modifiable factors such as age, socio-historical context, physical, and social environment (Fox & Hookar, 2015). Research on these constructs permitted understanding of the impact of development of identity and self-regulation in adulthood and old age with changing goals (Fox & Hookar, 2015).

State and federal contexts: Applicable to fall prevention federal dispositions on falls are prescribed in Omnibus Budget Reconciliation Act (OBRA) and are consigned in Centers for Medicaid and Medicare Services (McCawley, 2017). Federal tag F-323 consecrates patients' rights and stipulates that patients are expected to be free from accidents and injury (McCawley, 2017). Corollary, Medicare and Medicaid decreed mandatory reporting of any injurious accident including falls. In that logic, Centers for Medicaid and Medicare Services (CMS) instituted the punitive measure of non-service payment for injurious or fatal falls (McCawley, 2017). F-323 and F-324 respectively mandate that patients' environment be free of accident hazards and that patients receive adequate supervision and equipment assistance to ensure they are free from risks for accidents (McCawley, 2017). In that aspect, regulatory dispositions formally disapproved the wet and slippery floors, restrains, loosely secured and poorly maintained equipment or devices (McCawley, 2017). Applicable to this context are also survey questions on falls posed during investigations on accidents. The intent of those provisions was to prevent accidents (including falls) by ensuring a safe environment under full facility control (McCawley, 2017). By any means, provision of efforts for prevention by change agents and change facilitators in their diverse roles forcefully adhere to the above described federal and state regulations.

Role of DNP Student

As a Doctor of Nursing Practice prepared student practicing on the frontline and involved in prevention and management of fall events, my role was to research and disseminate evidence addressing the identified practice gap materialized by ineffective

fall prevention interventions and inadequate support. The choice for the project was motivated by witnessed injurious falls that occurred recurrently despite routine fall prevention measures. Furthermore, observed inconsistencies of interventions and logistic support motivated thoughts about other alternatives to minimize injurious and costly falls in a socio-economically challenged community.

Role of the Project Team

The implementation was expected to be carried out by the facility through a chosen team comprising frontline and managerial staff. The team would be assigned to support evidence-based efforts directed to implementation of fall prevention strategies at all levels. For literature review, there was no project team envisioned. Essentially, principles of shared perceptions, harmonized values and beliefs were recommended (White et al., 2016).

Summary

This section covered conceptual frameworks, the context and background, my role as a DNP student, and the role of the project team (not envisioned in literature review). Taylor's personality theory and Watson's theory of care were selected to support the evidence that guided recommendations for practice gaps resolution for fall prevention. The two theories emphasized person-centered and holistic care. Taylor's personality theory articulated the pertinence of understanding fall risks through personality and behaviors and the Watson care theory emphasized understanding propensity for falls based on intrinsic and extrinsic factors. The central benefit model was found to be of significant interest in many ways. This model clarified the significance of

improved cognitive function proceeding from and leading to improved physical activity and exercise as a mean to restore gait, balance and stability beyond mere musculoskeletal strength. The context of the project was a nursing home established in a rural city where falls occurred in a recurrent manner. The ineffectiveness of fall prevention intervention motivated the need to recommend researched evidence for different strategies to incorporate in practice to proactively curb the frequency of falls. Section 3 encompassed data collection modalities and analysis of researched evidence susceptible of addressing identified practice gaps towards reduced falls through fully implementation of improved fall prevention strategies.

Section 3: Collection and Analysis of Evidence

Introduction

Fall incidents are at the center of safety preoccupations at the field experience site. Because of the ineffectiveness of fall prevention to minimize recurrence of fall incidents, in this project, I purported to suggest researched evidence-based best practices to apply at frontline and organizational levels for more efficacious fall prevention and successful fall reduction. This safety practice issue was to be addressed in a long-term care facility providing care for 36 years for elderly and postacute care patients from medical facilities of the area with the mission to provide patient-centered, empathetic, and high-quality clinical care for a swift recovery and enhanced quality of life**.** In the perspective of evidence-based practice strategies serving as a springboard for attainment of fall prevention goals, in Section 3, I revisit practice questions, reliable sources of evidences, their relevance with the identified practice issue, and the appropriateness of data collection and evidence components processing. A systematic review of published literature addressing fall recurrence is presented in this section. Validity, comprehensiveness, and relevance to the focus question were the main criteria for evidence selection. I also describe means of evidence collection, participants, procedures, protections, evidence integrity, and analysis systems that consider abnormal data such as missing data and outliers. In Section 3, I present an overview of the analysis and synthesis of the data with a description of data organizational structure and the evidence analyzed to address the identified practice gaps.

Practice-Focused Question

Falls among residents who have reached at least 65 years of age occur in a recurrent fashion at field experience site, a health and rehabilitation center providing care for 36 years where one to two residents experience a fall every day. The underlying issue was the ineffectiveness of fall prevention strategies in place such as hourly rounding, the use of intelligent alarms, and the inadequacy of organizational support systems on top of knowledge deficiency. The practice-focused question was, therefore, what evidence-based practice strategies to recommend for direct resident care and support system for fall reduction. Based on the identified practice gap and the undesired clinical outcome manifested by recurrent falls, the pursued purpose was to develop research evidence to address the practice discrepancy and break the cycle of fall recurrence and ultimately improve safety. Because of adverse safety outcomes materialized by recurrent falls resulting from gaps in fall prevention practice, the issue could not be addressed without a change or adjustment of the current practice. As practice proceeds from knowledge, researching best practice evidence through a literature review aligned the most with the practice-focused question that was centered on the inappropriateness of practice at frontline levels for fall prevention and inadequacy of the support system. Investigating the significance of managerial support, Toole, Meluskey, and Hall (2016) realized that leadership support enhances the consistency of the implementation of proactive interventions. More importantly, a support system could not be effective without being tailored to identified barriers and facilitators to the implementation of fall prevention best practices. In a systematic review on strategies for a successful fall prevention, Vlaeyen et

al. (2017) indicated that determinants of the implementation are multifactorial and multileveled and need to be thoroughly identified. In the study, social and organizational determinants were found to be more influential than resident and economic or political factors (Vlaeyen et al., 2017). Effective communication, adequate knowledge and skills, and availability of needed equipment were determined to be the most powerful facilitators while poor communication and staff's negative feelings such as frustration, burnout, helplessness, and anxiety about the ability to control fall management were identified as barriers (Vlaeyen et al., 2017). Poor staffing, knowledge, and clinical skills gaps were also found to impede fall prevention implementation strategies (Vlaeyen et al., 2017).

The literature review for this project included researched recommendations for barriers and facilitators to consider when implementing suggested best fall prevention practice and proposed actions to undertake to remove those barriers and enhance facilitators at resident and organizational level. Throughout the course of this project, the site had an average of one to two falls per day, with approximately 720 falls per year. With the average census being about 75 residents, the fall rate was approximately 3% per day.

Operational Definition of Key Aspects

This doctoral project did not warrant the use of variables to define or to measure. I essentially focused on literature review to generate evidence-based recommendations for the facility to mainstream in routine assessment, planning, and interventions for improved fall prevention.

Sources of Evidence

The purpose of the project was a recommendation of evidence to transfer into practice to break the detrimental spiral of recurrent falls; thus, I sought researched evidence to reflect a high level of reliability and validity. Sources of evidence were reliable and valid. Consulted sources were Cochrane, CINAHL, EBSCO, MedLine, Ovid, ProQuest, Sage, Science direct, and Thoreau, and they included nursing or medical journal articles and digital nursing books published between 2008 and 2018. Therefore, explored sources were those published within the last 5 to 10 years. Some of those sources addressed fall issues and their implications, others covered theoretical concepts driving preventive measures for safety enhancement, and other publications underpinned practice changes applicable to recurrent falls in elderly residents on narcotics and antipsychotics. In an integrative conceptual model for technology interventions at system and direct care level, Hamm, Money, and Paraskevopoulos (2016) demonstrated that intervention systems were effective when they encompassed both pre-and post-fall instances. The model presented in the conceptual framework specified the significance of a thorough fall risk assessment to prior care and preventive intervention involving professionals, support systems, and patients or families. In effect, proposed technology-based interventions allowed for improvement of patient physical condition (gait, balance, muscle, strength, and stance) through virtual reality training beyond routine physical therapy (Hamm et al., 2016). The use of cameras to proactively detect falls was found to eliminate sensor-related discomfort and promoted patient participation and sustained interaction with practitioners (Hamm et al., 2016).

Another source provided guidelines aligned with the selected conceptual framework and applicable fall prevention interventions that allowed for a drop of injurious fall rates by 50% at the end of the study time frame. In their study, Zubkoff et al. (2018) emphasized the central role played by supported fall prevention leadership, the effectiveness of huddles if performed within 15 minutes from a fall occurrence using the "5 why" questions method for root causes identification. A huddle is expected to include patients' intention associated with a fall and recommended care plans adjustment (Zubkoff et al., 2018). Another source of evidence pinpointed the significance of neural plastic function regeneration enabling for gait, stance, and balance restoration. In a randomized controlled study Liu-Ambrose et al. (2013) reported that the Otago exercise program model was the most effective strategy for neural activity enhancement, and this intervention allowed for a fall rate drop of 47%. Otago exercise consists of muscle strength, balance retraining, and walking activities that are clinically prescribed and implemented by a trained professional. The positive correlation between the use of narcotics and fall risks was evidenced in a study on the strategies to reduce falls in patients on an advanced pain management regimen (Liu-Ambrose et al., 2013). De-prescribing narcotics in a collaborative fashion (involving professionals, patients, or their representative parties) to optimize fall reduction was recommended (Marvin, Ward, Poots, Heard, Rajagopalan & Jubraj (2017). Sources on purposeful rounding as an effective strategy to prevent falls were also consulted. In a study on benefits of purposeful and timely nursing rounds, Daniel (2016) highlighted the positive outcomes gained from intentional rounding and proposed tangible actions

to implement. Practically, this study confirmed the efficiency of the implementation of a rounding protocol manifested by increased staff compliance from 0% to 64%, which resulted in a pronounced reduction of falls (Daniel, 2016). In the same angle, Tucker et al. (2013) identified obstacles impeding implementation of intentional hourly rounding and recommended structured round interventions as a solution to recurrent falls. In a study on fall risk management, Dowling and Finch (2009) contributed input on baseline indicators for measuring accomplished progress in fall and injury prevention in older people. Those indicators for fall prevention focused on mortality rates, hospitalizations, and hip fracture prevalence besides overall fall rates in a given time frame (Dowling & Finch, 2009). Connected to the significance of evaluation of effectiveness was also the awareness of the extent of the practice gap underlying the ongoing clinical problem (White et al., 2016). Normally, this awareness triggers a shared perceived sense of urgency emanating from uncontrolled fall prevalence, and, in return, this urgency motivates a unanimous determination for change (White et al., 2016). Further sources were researched and explored during literature analysis for more reliable evidence.

Published Outcomes and Research

One of databases explored search engines utilized to generate publications related to fall prevention strategies was Thoreau using following key terms: *falls, prevention,* and *technology*. The study on exploration of prevention of falls and associated injuries in veterans were searched in EBSCO with "*preventing*," "*falls*," "*injuries*," "*veterans state homes*" as key terms in the CINHAL search engine. EBSCO basic was also searched for information on the contribution of exercise in improvement of gait and balance through

regeneration of neurological activity in the central nervous system. Key terms included "*central*," *"benefit*," "*model*," and "*exercise*." ProQuest, Science direct, and other databases that allowed access to the full text version of the content were also consulted for relevant evidence. More knowledge on prevention of falls in institutionalized elderly patients was found in EBSCO with key terms: *"preventing,"falls," "older people," "hospital."* PubMed allowed access to the version of information via Ovid database for details. EBSCO and Thoreau were searched using terms *"barriers," "hourly rounding,"* to generate needed information on benefits of hourly rounding. The ideal publication time was 10 years or less. Sources searched were mostly journals, journal articles, e-books, book prints, and systematic reviews. Those sources were comprehensive and thorough and most of them provided details on fall contexts and outcomes and covered diverse research and publication rubrics. More importantly, content was commensurate with defined theoretical concepts and models supporting evidence to be recommended.

Archival and Operational Data

There was no specific archival data collection since the practice problem on fall prevention and subsequent clinical issues was evidenced by observation for an entire year. Consequently, it was not opportune to gather additional data to confirm the authenticity of the issue. Literature review to identify recommendable evidence to reduce falls and specifically to remove barriers to the implementation of best practice was the ultimate finality of this doctoral project.

Analysis and Synthesis

In this project, evidence was used to suggest practice adjustment to implement for better fall prevention outcomes. Recommendable evidence for improvement resulted from a review and analysis of researched literature. The systematic literature review handbook was utilized as the principle resource and the tool of choice to analyze the evidence and literature review was the PRISMA. In fact, PRISMA was documented as the best evidence reporting approach that preserves the most utility of metanalysis and of review studies (Peters, Grolman, & Stegeman, 2015). Strengths, relevance, validity, thoroughness, authority, and generalizability were part of analysis rubrics on which the literature study leaned. Limitations such as bias and sample inadequacy were also appraised prior concluding on evidence-based practice adjustments to recommend for better fall prevention outcomes. Succinctly, the evidence principally emanated from literature review and there was no specific recording or tracking activities.

Ethical Assurance

In this project, no subjects were involved in data collection. Instead, review studies were generated from selected literature databases for, analysis, discussion and recommendations. After fulfillment of recommended modalities, Walden University endorsed the project proposal under IRB approval number 03-07-19-0494844.

Summary

Section 3 consisted of revisiting the practice-focused questions and identifying resources on which to rely from ample sources that were consulted. Relevance, authority, validity, and adequacy of generated analysis were explored and clarified for the

credibility of sources and evidence. Search engines and key terms along with name of sources were determined as well. Literature analysis was processed through PRISMA methods and recommendations resulted from outcomes from the literature analysis. Addressing barriers to identified best practices was the cornerstone of policy and procedures changes that eventually lead to desired outcomes and certainly have multiple implications. Section 4 presents the literature review results, survey findings and their implications, recommendations, and the strengths and limitations of the project. Dissemination, self-analysis, and the doctoral project summary are covered in Section 5.

Section 4: Findings and Recommendations

Introduction

Considered sentinel events, fall occurrences in long-term care facilities are recurrently and adversely impacting residents, families, and diverse health care stakeholders. As observed at the project site, while long-term care facilities have instituted fall prevention strategies, the outcomes do not reflect the intended fall rate and fall risk reduction. Presumptively, the lack of gains in fall reduction is due to inappropriate implementation, and all stakeholders involved in the implementation are accountable for the observed relapse to the previous fall occurrences status. The rationale for this review of the literature was the need to remove barriers hampering fall prevention strategy implementation and the advantage of facilitators furthering fall prevention at the organization (see Vlaeyen et al., 2017). Reportedly, knowledge enhancement through staff training resulted in a 10% to 15% fall reduction (Teresi et al., 2013). The effect of adherence to principles of motivation and accountability among front-line staff for purposeful intervention also justified this review. Processes underlying falls, propensity for falls, and research on barriers and facilitators provided insights for recommendations to build staff capacity as an important facilitator.

Problem-Focused Question

The review was intended to answer the following question: Based on identified fall practice gaps and barriers hindering compliance with fall prevention strategies, what evidence-based recommendations on best fall prevention practice should be suggested to

contribute to fall reduction in institutionalized residents 65 year and older on narcotics and antipsychotic medications at the project site?

The design of the DNP project proceeded from observed recurrence of falls at the project site on three units of the long-term care institution. The underlying problem was the ineffectiveness of the implementation of fall prevention policies reflected in the number of falls that was not commensurate with the fall prevention interventions. More importantly, this incoherence between the existence of fall prevention inputs, throughputs, and outputs was a consequence of practice gaps warranting attention. For instance, the lack of promptness in the response to patients' needs and the nonproactive character of fall prevention interventions are part of the noted practice gaps may reflect staff knowledge deficiency or heavy workloads. Practice discrepancies were also a result of barriers hampering the implementation of fall prevention protocols to their full extent.

The question that was posed was to know what evidence-based recommendations should be proposed to remove implementation barriers, enhance facilitating factors, improve fall prevention strategies, and successfully address underlying practice gaps. In this perspective, I searched for evidence to address practice shortfalls and underlying issues to achieve efficient falls reduction and improve patients' safety. Fall reduction was expected to positively impact families, local communities, and the nation.

The selection of the evidence components exclusively targeted credible sources that generated the most current knowledge documented in journal articles, e-books, book prints, and peer reviewed publications. The search engines (Cochrane, CINAHL, EBSCO, MedLine, Ovid, ProQuest, Sage, Science direct, and Thoreau) generated

evidence from articles published between 2008 and 2018. Addressed issues included falls and their implications, theoretical concepts underlying preventive measures, recommendations for safety enhancement practice changes, and determinants of fall propensity. In this doctoral project, sources on which to rely were those bearing evidence-based practice proven to be effective through research. Combinations of key words (*central, benefit, model, exercise, preventing, falls, older people, hospital, barriers,* and *hourly rounding*) were typed into the search engines to generate sources from which information addressing practice gaps and explored barriers could be generalized. For the quality of reporting, appraisal, and analysis, the "prisma" method was adopted .

Evidence appraisal through the "prisma" consisted of depicting key information related to the title, abstract, title, introduction, methods, results, discussion, and conclusion. The abstract of the identified study pinpointed study objectives, data sources, criteria of eligibility, participants, methodology, findings, limitations, conclusions, and perceived implications on key findings. The review introduction encompassed the rationale and objectives whereby the addressed questions were presented in a participant, intervention, and comparison outcomes fashion. Methods delineated eligibility and exclusion criteria, sources of information, search strategy, and bias risks and resulted in precise article selection criteria. This information referred to the number of studies appraised with the specification of inclusion and exclusion criteria along with the rationale. The synthesis of results focused on beneficial or undesired findings and congruence with other studies. The discussion rubric focused not only on the strength of

the evidence in terms of validity and relevance but also addressed the weaknesses in terms of the meaning of findings such as bias and the completeness of the information (Vlaeyen et al., 2017).

Three of the four selected scholarly publications presented risks for bias because of a lack of group assignment blindness. However, two of the three studies involved independent reviewers' prior analysis and discussion. Thus, the odds for bias were attenuated to some extent. Additionally, the randomized controlled trials benefited from scientific rigor that conferred generalizability to the findings, a notable reliability trait. Across studies, the risk for bias was higher because there was no independent reviewer to critique the overall evidence. However, this shortfall was counterbalanced by compliance with PRISMA guidelines that allowed for objective appraisal of the content of selected publications.

Findings and Implications

A total of 47 studies were screened for review. From the 47 screened, 20 were excluded because of a mismatch with the abstract or title. From the 27 remaining, 11 were eliminated for setting, four for design, and 10 for objectives. Eventually, four studies were retained for review, analysis, discussion, and recommendations. Across this process, studies bearing evidence-based information addressing identified system gaps, barriers, and facilitators to fall prevention implementation were considered for suggestions. Shortfalls thought to be addressed through proposed recommendations included staff knowledge limitations, inadequate support systems, inconsistent and nonproactive interventions, ineffective staff supervision, and noncompliance with

protocols and procedures. One of the outstanding added values of the review was the inclusion of both barriers and facilitators of the fall prevention strategies and implementation processes. The emphasis of evidence underscoring the significance of personality in fall risk management was another gain from the review. Figure 1 provides a synoptic view of the study selection process.

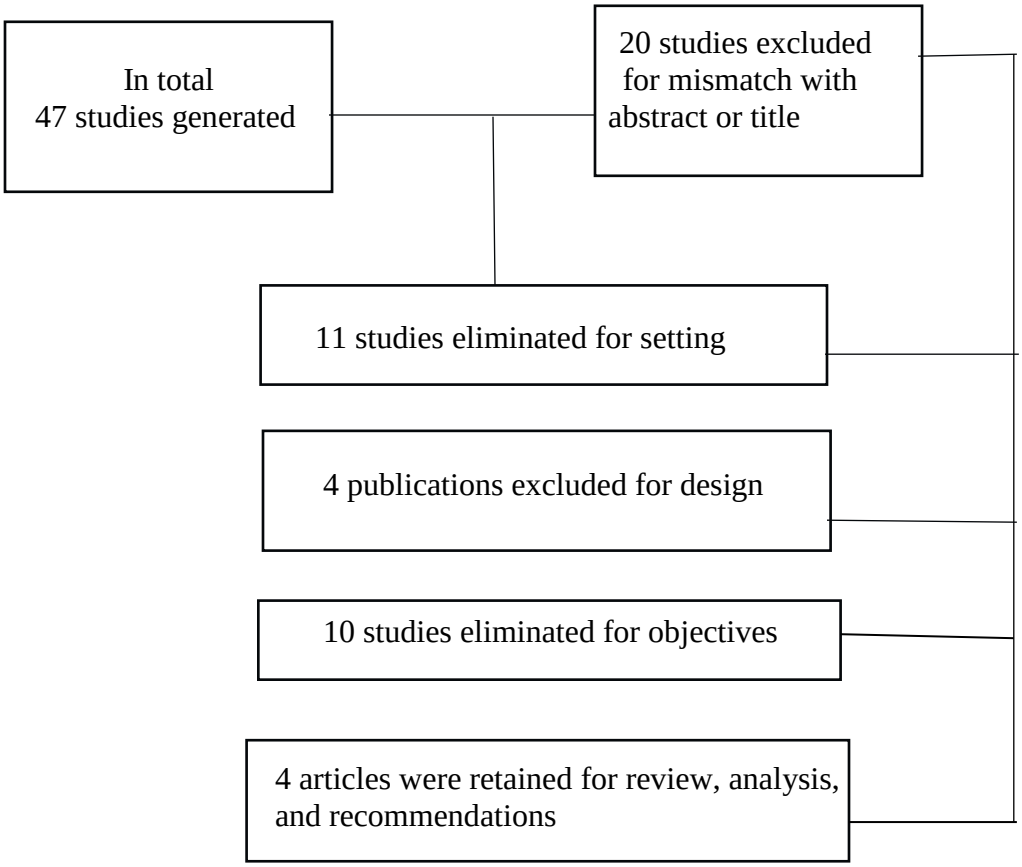

Figure 1. Study flow Diagram 1.

Study Characteristics and Synthesis of Individual Study Results

Considered characteristics included authors, year of publication, design, methods of data collection, the setting, participants, and data analysis approach. The table (see Appendix) provides detailed characteristics of retained studies.

Study 1: Implementation of Fall Prevention in Residential Care Facilities: A Systematic Review of Barriers and Facilitators (Vlaeyen et al., 2017)

The study was a comprehensive review of publications that particularly addressed fall prevention implementation facilitators and barriers. The PRISMA method was adopted to report findings. MedLine, EMBASE, CINAHL, Psychinfo, and Web of Science were searched. Out of 2444 publications generated, only 8 were selected for review. Conformity with title, setting, and target population were selection criteria and screening was performed by two independent reviewers. According to findings, organizational determinants predominated over sociopolitical factors. Particularly, effective communication and consistent support system facilitated implementation. According to this study, adequate staffing, quality staff training, adequate supervision, and sufficient logistic supply enhanced fall prevention strategies implementation.

Conversely, inadequate and poorly informed staff across shifts and between staff and families, absence of care plan sharing, missed fall reporting, and frictions between licensed and ancillary staff dangerously compromised fall prevention implementation. Furthermore, stress, frustration, poor staffing, lack of confidence, and knowledge deficiency were identified as implementation barriers. In addition, Implementation was found to be impeded by perceived burden of policies, poor knowledge and fall management skills, and perceived inevitability of falls (Wagner et al., 2010; Chapman &

Newerhouse, 2013 cited in Vlaeyen et al., 2010). The lack of time, turnover, the floating system, and the excessive workload reimbursement policy constraints were also identified as part of barriers. Lack of accountability and inappropriate communication such as punitive and blaming approaches, and staff burnouts were determined to impede implementation as well (Wagner et al., 2010 as cited in Vlaeyen et al., 2017). Non-participatory approaches excluding nurses in decision-making constituted another important barrier to implementation (Capezuti et al., 2007 as cited in Vlaeyen et al., 2017). Relegating fall prevention to a low priority status was identified as a negative implementation factor as well. Another barrier affecting implementation was residents' non-compliance with fall prevention instructions (Wagner et al., 2010 as cited in Vlaeyen, et al. 2017).

Another limitation was health records accessibility to the only Registered Nurses per HIPAA (Health Insurance Portability and Accountability Act) regulations and reimbursement policies hampered communication and interdisciplinary collaboration in fall prevention matters.

The added value of the study was the inclusion of facilitators and concrete activities to remove barriers and enhance facilitators. In effect, targeting primarily the most influential determinants and stressing modifiable factors was strongly encouraged. However, non-modifiable factors that are for the most generic (such as time constraints) were not ignored because they could be a manifestation of underlying critical and modifiable determinants. Low quality scores and inadequate sample were determined to be the weak points of the review.

Study 2: Comparative Effectiveness of Implementing Evidence-Based Education and Best Practices in Nursing Homes: Effects on Falls, Quality-of-Life and Societal Costs (Teresi et al., 2013)

In a semi-experimental and conducted study in nursing homes on 7631 older adult residents, multidisciplinary and multilevel staff training on both intrinsic and extrinsic factors was conducted for 180 days and a drop in the falls rate of 10% to 20% was achieved in patients cared for by trained staff; no drop in the fall rate was achieved in control populations.

The study delineated the significance of staff training as an evidence-based intervention to prevent and optimally manage falls events. The same study had also the merit of using a representative sample by involving staff members at diverse levels. Although the quality was rated to be relatively row, the rigor of utilized scientific method outweighed that shortfall.

Study 3: Interventions for Preventing Falls in Older People in Care Facilities and Hospitals (Cameron, 2018)

Uncontrolled mortality and morbidity from falls in older patients in 78 hospitals and in 84 long-term care facilities motivated this review with the purpose of fall reduction effect appraisal. Cochrane, MedLine, EMBASE, and CINAHL were the databases searched and publications from randomized trials were selected. The GRADE (Grading Recommendations, Assessment, Development and Evaluations) model was used to assess the quality of the evidence that was found to be relatively low (meaning uncertainty of the effectiveness of interventions) due to lack of blindness in the sampling process. Interestingly, the quality of the evidence on vitamin D supplements and

multifactorial interventions was found to be moderate and their effectiveness was found to be manifest specifically in nursing homes (Cameron, 2018). The inconsistency between the existence of routine protocols for fall prevention and fall rates or adverse effects justified the pertinence of conducting a review. Ignored self-assessment for own bias was the major study limitation.

In hospital settings, outcomes were found to be different. The effect of all interventions to reduce falls were inconclusive. Authors screened studies for inclusion eligibility in the review. In total, 3989 articles were screened from diverse databases, of which 413 articles were identified for inclusion. Of these articles, 78 studies used qualitative analysis and 95 studies used quantitative analysis. 205 articles were excluded as duplicates. Exclusion criteria essentially included wrong setting, wrong population, wrong data, incompatibility of title and abstract, not being a randomized controlled trial, being duplicates, irrelevant interventions, absence of fall outcomes report, falls recorded as adverse events, and invalidity of falls data.

Settings were a sub-acute unit of a hospital and geriatric care institutions clustered in 5 units. 52% of the sample was female with an average age of 83.2 years. Other characteristics for the individualized fall prevention program included the fall risk, the level of dependency, and cognitive status. Being over 65 years of age was an inclusion criterion whereas restriction to bed and refusal to participate were exclusion criteria. Longer length of stay and a higher percentage of females in the control group were pre-treatment differences that were considered.

In sum, the exploration of the evidence revealed uncertainty about the effectiveness of exercise, multidisciplinary interventions, and use of fall alarms in falls reduction for hospital setting participants, while limited effectiveness was noted for institutionalized care because the evidence was found to be of low or very low quality. The noted effectiveness was applicable to a reduction of falls but not of the risk for fall (Cameron, 2018). The lack of group assignment blindness was the major source of potential bias. Other studies on hospitals, care facilities, and community residences revealed that combined multifactorial interventions and single interventions such as exercise, medication reviews, vitamin D supplements, psychosocial interventions, environmental technology, and staff training contributed to fall reduction without reducing the risk for falls although findings on trials were not consistent (Cameron, 2018). The noted inconsistency and low quality of evidence were related to predisposition for bias and inadequate trial sample sizes. Trials with larger samples and blinded data collection methods were recommended to minimize bias in future studies. The other notable limitation was associated with setting-related confounding variables. The study did not show a clear demarcation between the specific influence of each setting (long-term and acute care settings). Compared to other studies, this review demonstrated the importance of staff training on the effectiveness of the interventions. Reported publications were primarily randomized controlled quasi- experimental studies that used real world contexts (long-term facilities). As many of the studies selected for fall prevention evidence, the quality was relatively low due to uncertainty of the effectiveness of the interventions.

Study 4: Can Personality Theory Help Us Understand Risk of Falls? (Kloseck et al., 2008)

This study was included for the utilization of fall risk management tools and fall prevention interventions. The role of personality as a determinant of fall risk and fall prevention was analyzed. In fact, the study reviewed literature on aging, personality, and fall risks and established that the factors were correlated. The added value was the improvement of the quality of fall risk assessment tool by incorporating the personality component. According to the study, personality traits influenced the propensity for falls and the response to fall risks and to fall events. Personality impacts the implementation of fall prevention measures because the interventions to prevent falls involve in interactions between caregivers and residents (Kloseck et al., 2008). In effect, extroversion was determined to increase risks for fall because extroverted individuals strive to get to their interests regardless of perceived risks (Kloseck, et al., 2008). Moreover, falls occur under particularly negative states such as exertion and distress. Because interventions target states instead of traits, fall risk assessments are expected to cover not only personality traits but associated states as well (Kloseck et al., 2008). Individuals with high conscientiousness are thought to be at lower risk while those with the opposite trait are at high risk because their rationality about intentional actions differs (Kloseck et al., 2008). Two residents presenting with the same age-related or other fall risk factors will respond differently to risk due to personality traits. Consequently, fall risk assessment is expected to incorporate personality traits and subsequent traits influencing risks and propensity to fall.

Personal action constructs and self-regulatory processes are meant to enable older adults to function and cope with multidimensional life changes that play a central role in residents' responses to fall risks (Kloseck et al., 2008). Therefore, activities and behaviors in discordance with the actual physiological and mental capabilities and limitations put residents at risk for falls. Connecting to practice, fall risk assessment should include a comprehensive evaluation of personality traits and states influencing occurrence of falls (Kloseck et al., 2008). Compared to other studies, this article considered processes affecting a person, intentions associated with immediate needs, connections between that person and those needs, interactions with other persons as related to pathways toward the satisfaction of those needs, and the overall behavior and emotional states affecting those interactions and connections (Kloseck et al., 2008). A full understanding of how an older adult interacts with their environment is paramount for a successful fall risk assessment.

The limitation of the study was the lack of a systematic guide to assess for personality traits to incorporate in the fall risk assessment tool and process (Kloseck et al., 2008). Another weakness was that the study did not specify the setting, although the process involved elderly patients outside their family residences. However, because modifiable personality traits were found to be able to affect fall risk, the scholarly publication was considered for the pertinence of generated recommendations.

Discussion

These studies provided a view of the determinants to be addressed for improved fall prevention strategies. The four studies selected for review answered the project clinical

practice question and proposed solutions to the identified practice gaps. From the study on barriers and facilitators of fall prevention implementation, 44 fall prevention influencing factors were identified. Seventeen of them were facilitators and 27 were barriers. Socio-organizational factors (9 and 14 respectively) were found to predominate over economical-political determinants (3 and 4 respectively). Effective communication and adequate logistics were the most important facilitators. Interestingly, states associated with falls were staff anxiety, stress, helplessness, and lack of confidence in the ability to manage falls. Therefore, perceived overwhelming policies and procedures on falls, stress from in-service training requirements, inadequate staffing, knowledge and skills limitations, and deficient communication were identified as serious barriers to the implementation of falls prevention strategies.

Addressing communication barriers resolves the issue of delayed response to residents' needs. Attention to the staffing ratio and appointment of a fall prevention coordinator addressed the problem associated with the lack of staff supervision. At the project site, weekend and night supervision was completely absent falls occurred more frequently that time. The presence of a clinical leadership team would address the need for reinforcing knowledge and fall prevention skills (Vlaeyen et al., 2017). Accountability for call light response time may be resolved through both consistent supervision and enhanced education. The appointment of a fall prevention coordinator will address the issue of timely, proactive interventions and awareness of fall prevention processes (Vlaeyen et al., 2017). Staff training was consistently pinpointed in 3 of the reviewed articles.

The significance of staff training (all categories) on multidisciplinary fall prevention strategies considering both intrinsic and extrinsic factors cannot be overstressed. In effect, despite the importance of multidimensional fall prevention strategies the exclusion of staff training always yielded minimal fall risks and fall rates reduction (Teresi et al., 2013). The focus on the less important determinants instead of addressing the strongest barriers and facilitators resulted in ineffective implementation of fall prevention plans (Vlaeyen et al., 2017).

At the project site, multidisciplinary knowledge and competency training pertaining to fall prevention strategies and implementation is expected to bring a solution to the prevailing deficit in knowledge and inadequate skills. As stipulated in previous paragraphs, comprehending, connecting, and balancing interventions on determinants at diverse levels was an ideal approach to ensure a full fall prevention strategy (Vlaeyen et al., 2017). To achieve optimal outcomes, a thorough assessment of fall risks taking into consideration intrinsic and multidimensional extrinsic factors was recommended to be the initial stage for a full implementation of improved fall prevention strategies.

Another important aspect calling for staff knowledge enhancement was the finding that personality is an intrinsic factor in the propensity to fall (Kloseck et al., 2008). Because extroverted persons are most likely to engage in actions toward their goals regardless of perceived potential or actual risks, their propensity to fall is higher (Kloseck et al., 2008). Physical self-regulatory processes involve in adaptation to life changes such as chronic diseases are essential in fall prevention (Kloseck et al., 2008). Poor self-regulatory processes put an older resident at high risk for fall. The assessment

of personality-related fall risks for older adult residents should focus on how they gauge fall risks, how they balance their capability and limitations to sustain their safety, and on how their quality of life is enhanced (Kloseck et al., 2008). The effects of non-age-related personality factors on the effectiveness of self-regulatory and cognitive processes warrant an appraisal at the initial phase of fall prevention implementation plans (Kloseck et al., 2008).

The strength of the review resided in the clarity of the identification of facilitators and barriers to implementation of a successful fall prevention program. For example, in the study about the effectiveness of multidisciplinary staff training on fall reduction, a decline of 10% to 15% was achieved after the implementation the program. Interestingly, single or synergetic interventions that exclude staff training end in poor fall reduction outcomes (Teresi et al., 2013). Compliance with safety standards has a significant relationship with public insurance reimbursement and, therefore, with improved patient care (Teresi et al., 2013).

One of the limitations of the systematic literature review was the number of selected studies for generalization of the evidence. Only 4 publications were selected from the 47 publications generated for screening. Another limitation was the lack of an independent reviewer to minimize risks for bias. Moreover, the quality of the evidence on facilitators and barriers to fall implementation was rated as low, specifically due to the scarcity of relevant publications on that matter.

Analysis of the Evidence

These studies did not involve any data collection. The project consisted of a review of 4 selected studies on falls and the appraisal of those studies using the PRISMA method. Contributions from the selected studies aligned with identified practice gaps and underpinned the deficit in staff knowledge and skills. In effect, the reviewed studies highlighted the significance of removing barriers stopping professionals from fully implementing fall prevention strategies. The evidence provided support for the effectiveness of staff training.

The other significant contribution was the necessity for thoroughly assessing fall risks and adopting a more comprehensive fall risk assessment tool. The Peninsula Health Falls Assessment Rating Tool (PHFRAT) was suggested for fall risk assessment and the assessment of personality traits is proposed through application of the fall Stroop Word Color Test (SWCT). In addition, appointment of a fall risk and fall prevention coordinator would help to ensure that interventions are fully and properly implemented. Reduced fall occurrences are expected to make a difference in residents', families', professionals', and communities' satisfaction with the care provided at the project site

Potential Implications for Positive Social Change

A successful implementation of recommended evidence-based fall prevention strategies will positively impact patients, families' health care professionals, ancillary personnel, and all other agents involved in patient care. Removal of most influential barriers and enhancement of most impactful facilitators will eliminate anxiety, stress, and overwhelming workload, restore confidence about knowledge and skills, and promote

proactive interventions to optimize safety and quality outcomes through reduced falls. One of major causes of lack of sustainability of the implementation of fall risk strategies was found to be the practice gap associated with unaddressed barriers and facilitators (Vlaeyen et al., 2017). Patient-centered care promotes compliance and furthers satisfaction. With enhanced knowledge about the rationale for improved fall management skills and care plans, nurses will be capable of performing a better implementation fall prevention and achieve fall reduction goals. They will also comprehend benefits of adherence to evidence-based practice. In this context, the integration of the personality component in the fall risk and propensity assessment and care processes will allow for proactive and informed interventions to reduce the probability for falls. This aspect of improvement will enhance the understanding of the interplay between patient care and evidence-based practice (Teresi et al., 2013).

Expectedly, the professional and social significance of the project follow from the added value to safety and quality in the clinical setting. Stress and excessive workload proved to be a significant source of medication errors, nurse's dissatisfaction, and excessive time consumption to the detriment of diverse aspects of care (Holland, Allen. & Cooper, 2013). With reduced falls, financial expenses will be significantly lowered and, with reduced workload, stress and anxiety will be addressed.

The recommendations for innovative fall prevention processes improvement and implementation strategies will contribute to positive social change in many ways. Injuries will be reduced as fall rates drop while financial and social burdens on families and communities will be alleviated (Teresi et al., 2013). Consequently, resources that were

allocated to falls and injuries management and on drawbacks of subsequent clinical errors will be directed to the improvement of the quality of life for the residents and their family members.

The positive experience about achieved reduced falls and alleviated financial and clinical burdens will promote conscientious and active participation in care processes, compliance, and general health promotion outcomes. With a fall reduction and subsequent financial gains, motivation for further reduction of falls among diverse stakeholders could be achieved (Teresi et al., 2013).

Recommendations

Practice gaps observed at the project site accounted for unresolved recurrent falls and this situation needed to change for the good of residents, families, the institution, and the community. Literature exploration and analysis provided insights and recommendations for solutions applicable to the observed shortcomings pertaining to the quality of fall prevention strategies. Based on results of the systematic review project, I recommend the following fall prevention strategies:

Using a Risk Assessment Tool That is User Friendly, Highly Sensitive, and Specific

The PHFRAT was found to be both highly specific and sensitive. In effect, this tool also proved to be reliable regardless of the rater and allowed for completion of a fall risk assessment in about 2 to 3 minutes (Nunan et al., 2018). Interestingly, the PHFRAT discerns between modifiable and non-modifiable fall risk factors and targets risk reduction interventions. More importantly, the tool includes questions on fall risk status, a checklist aimed at fall risk reduction strategies, and an action plan including

interventions that connect to generate a care plan (Nunan et al., 2018). Easy to use tools promote compliance and efficient work flow. Because the PHFRAT does address fall reduction and not fall risk propensity, a supplementary evaluation that takes this factor into account should be included.

Integrating the Personality Component in Fall Risk Assessment and Intervention Processes

One of the tools proposed to be used with the PHFRAT tool is the SCWT (Stroop Color and Word Test). The study of the correlation between SCWT scores and frequency of falls evidenced that frequent fallers scored worse than non-fallers and that this test could be used to assess residents' fall propensity. The SCWT is a neuropsychological test designed to assess ability to inhibit actions (Scarpina &Tahini, 2017). Word reading, color naming, and named color-word are major components of the test. The neuroplasticity tests are for selective attention and conflict resolution that translate into the judgment ability (Liu-Ambrose et al., 2013). This test determines how best neuroplastic features and self-regulation processes connect to guide deliberate, well-coordinated, and balanced movements. Research demonstrated that healthy neural connections lead to successful self-regulation through and safe movement and indirectly allow for musculoskeletal strength and balance. Reciprocally, improved and frequent physical activity trigger movement related mental processes to occur and contribute to further enhancement of neural plasticity. Eventually, physical activity and neural processes allowing for accomplishment of movement connect and contribute to the reduction of fall propensity (Kloseck et al., 2008).

Associating Physical Exercise and Mental Activity

Given the interplay between neuroplasticity and musculoskeletal parameters, I recommend that cognitive activities involving words reading, color discernment and even more complex mental activities be coupled with physical therapy sessions. Because falls are likely to occur anywhere in long-term care facility and fall risk prevention is a responsibility of all staff members, the use of visual cues was found to be paramount. Indeed, visual cues would draw staff's attention about the residents at fall risk across service departments (Deloris, 2014).

Appointing a Fall Risk Prevention and Fall Management Coordinator

The lack of full-time supervision and the assignment of multiple tasks to nurses was identified as a strong barrier to fall prevention. Appointing a fall risk and fall management coordinator would allow for a thorough assessment of fall risks and a full implementation of strategies to remove barriers and enhance facilitators. Nurses' stress from burnout would be alleviated as the fall risk coordinator and the fall risk prevention would take care of time-consuming tasks pertaining to assessment and fall management. The fall risk and fall management coordination team would also provide staff support through identification of needed equipment, and training and advocacy for fulfillment of those needs. Monitoring and evidence-based support will be consistent because the risk management will ensure effective communication and keep staff informed about ongoing fall prevention processes and updates about policies in use. As underpinned in nursing practice, principles of nursing care must draw on best available evidence (White et al., 2016).

Enhancing Organizational support

Based on findings and observed practice gaps, I suggested that the facility set up proactive strategies to double staff-resident ratios to ensure staff retention and to provide staff training based on fall risk and fall management coordination team and direct care staff members' recommendations. This strategy will address the staffs' knowledge and subsequent lack of confidence and anxiety about the ability to prevent and appropriately handle fall events. I also recommended the elimination of the punitive and blame culture because it distorts communication and impedes motivation.

Regularly Evaluating the Quality of Communication

Effective communication among staff and across shifts and departments will keep all professionals updated about fall prevention and fall management care plans. More importantly, seeking nursing staff input through huddles and planned meeting will allow for and accurate identification of barriers and facilitators to address. According to research, a fall reduction of more than 54% was achieved when staff members were involved in decision-making processes related to fall prevention (Vlaeyen et al., 2017).

Staff Training Monitoring and Evaluation

Limited awareness of policy dispositions for fall prevention interventions was identified as one of outstanding practice gaps. Therefore, all staff should be trained on fall prevention barriers, facilitators, and on policies and associated implementation strategies. Educational sessions combined with write-ups are perceived as punitive and were not beneficial to staff members whose residents experienced falls. In-service trainings that are hastily done between shifts did not help in nursing advancement. A

systematic training action plan needs to be processed and ample time needs to be allocated to staff capacity-building and post-fall huddles are highly recommended.

Promoting Proactive Interventions

One of noted critical practice gaps was the implementation of falls prevention measures after fall events. A proactive approach promotes educated interventions and allows for timely interventions (Vlaeyen et al., 2017). For instance, orders for fall mats, chair alarms, bed alarms, and one-on-one sitters were mostly processed after an injurious fall while those strategies could have been instituted based on fall assessment findings. Observation at the project site also revealed that follow-up on hourly rounding was rarely done after fall events. I highly recommended that hourly rounding be monitored and that accurate automatic verification strategies for time and provided care be instituted to ensure compliance. While hourly rounding was identified as one of the best fall prevention practices, fall reduction gains did not last more than a year due to lack of compliance (Daniel, 2016). An hourly rounding monitoring tool such as an electronic form only accessible in the patient room would allow for an easy and accurate record of all those interventions and evaluation by the fall prevention coordinator.

Initiating an Otago Exercise Program

Otago exercise program is aimed muscle strengthening, balance retraining and walking. The advantage of this program is that it does not necessarily require a physical therapist. Nurses can be trained to run the program. Besides significant reduction of fall rates, a randomized controlled study on the effectiveness of the Otago exercise program for 6 months confirmed improvement of lower extremity muscle strength and balance

improvement, enhanced walking speeds, better ADL performance, and a reduced number of residents experiencing pain (Kocica et al., 2017). Determining eligibility of residents upon admission and engaging them in the program right away would keep residents at low risk for falls.

Initiating Virtual Reality Training Through Camera Supported Console Games

This strategy would enable residents to improve static and dynamic balance, enhance physical resilience and strength, and alleviate emotional disorders and pain. According to research, the above-mentioned factors tremendously affect fall prevention and significantly contribute to fall reduction and fall propensity and fear for fall (Kamińska et al., 2018).

Deprescribing Superfluous Narcotics

Observation at the project site revealed an apparent excessive use of narcotics and antipsychotics. Without those medications some residents were rarely in pain and rarely displayed unusual behaviors thought to be addressed by those medications. Administering narcotics and antipsychotics when residents do not actually need them may contribute to altered mental status and interfere with neuroplastic connections and then disturb gait and balance and predispose residents to falls. Neuroplastic connections support self-regulatory processes that balance intentions and activities towards intended actions (Kloseck et al., 2008). At the project site, the belief that every scheduled medication has to be unquestionably administered may contribute to unnecessary administration of medications including narcotics and antipsychotics. Appointing a medication review team involving nursing staff involved in resident direct care may make

a difference on fall risk prevention and management. As established by research, the effect of medications on neural plasticity impacts gait and balance in physical activity (Marvin et al., 2017).

Strengths and Limitations of the Project

Strengths

The project was conceived in a real-life context and the problem was directly witnessed on a regular basis. Identified barriers and facilitators of fall prevention implementation strategies were perceived at the project site and the multidimensional adverse fall outcomes described in the literature were routinely witnessed as well. Therefore, recommendations are relevant to the identified practice gaps and are likely to contribute to the improvement of prevention strategies, correction of practice gaps, enhancement of staff capacity and buy-in, and full implementation of fall prevention policies and protocols. This project may be used in the long-term care facility to promote evidence-based practice and informed preventive interventions. The project findings can also be used to facilitate development of a more comprehensive risk assessment tool. Awareness of the significance of personality for caregivers and residents was also found to be an additional fall prevention implementation facilitator (Vlaeyen et al., 2017).

Limitations

The major limitation was the inadequacy of the reviewed studies for generalizability and the possibility for confounding results because study inputs included information from settings other than long-term care (one publication). Moreover, there

was no conceptualized systematic guide to assess fall risk propensity and risky responses to fall events.

Interestingly, key findings showed that fall prevention policies and protocols should address all barriers to fall prevention particularly the most impactful on the implementation and draw on facilitators to better guide practice. Consequently, staff education on those determinants and fall risk assessment were found to be essential to achieve informed and purposeful fall prevention interventions. In that framework, awareness of factors and processes by which interventions such as exercise or virtual reality training contribute to minimize fall risks and, therefore, fall occurrence were found to be useful. Another finding from the reviewed literature was the significance of personality as a determinant of self-regulatory processes. PACs involved in risk-taking and the balance between residents' capabilities (or limitations) and pursued needs satisfaction were associated with personality traits. Personality was also found to affect the quality of interactions between the resident (the risk taker) and the professionals (Kloseck et al. 2008). Non-therapeutic interactions were found to impede compliance and risk-taking behaviors and risks for falls (Vlaeyen et al., 2017). Based on findings and implications, corrective practice adjustments were suggested.

Section 5: Dissemination Plan

The effect of falls on patients, families, communities, private and public health care providers, and decision-makers cannot be overstressed. Overcoming identified challenges and fostering facilitators requires a wealth of resources that can be mobilized through advocacy. My dissemination plan is to share findings and recommendations with the site leadership team and to publish articles on recommended innovative strategies to prevent falls. Expectedly, the published work will draw the attention of health care professionals and of the community at large. Publishing outlets will be contacted according to the scholarly publication process. After dissemination pertaining to this project, I hope that scholars, health care decision-makers, and institutions will dedicate resources and explore ways to improve fall prevention programs. A further literature review addressing the noted current limitations to successful fall prevention programs is envisioned to eliminate barriers, enhance facilitators, and better implement improved fall prevention strategies in the future.

Analysis of Self

As a professional who has served in diverse health care settings (long-term care, hospitals, community as a home health nurse), I have gained knowledge and experience about older adult clients' needs and determinants of quality of life, for which safety is a priority. As a DNP prepared nurse, I am in a good position to use scientific knowledge and analytical skills to analyze critically fall prevention strategies and alternatives to sustain their implementation for fall reduction. I am equally capable of designing a cost-effective change plan based on suggested recommendations to help the facility fully

implement and improve fall prevention measures. As a nurse educator, I can design a staff capacity building program with pragmatic implementation strategies that may help staff become more knowledgeable, more skilled, more accountable, and more motivated to engage conscientiously in fall prevention processes aimed at fall prevention implementation barriers removal and facilitators enhancement. The American Association of Colleges of Nursing Doctor of Nursing Practice (DNP) Essentials (2006) pinpointed the significance of the ability to use scientific knowledge, evidence, leadership abilities, analytical skills, and technology to advance nursing practice and improve quality care.

Summary

Insights related to the DNP project emanated from the observed recurrence of multiple fall incidents on each unit at the field experience site. The setting was a 180-bed long-term facility providing skilled and long-term care services. Most falls were injurious and affected nursing care, families, and the facility in adverse ways. Although the facility has clear policies about fall prevention and management, the outcome did not reflect those procedures. Identified practice gaps included staff knowledge deficit, poor supervision, nonproactive and nontimely interventions, limited organizational support, and sustained inadequate staff/resident ratio. The population of the project was geriatric patients age 65 or older who were taking narcotics and antipsychotic medications.

This population was chosen because it is at high risk for falls given age-related physical, mental, and cognitive changes, and the effect of the medications on thought processes and physical mobility and coordination. The purpose of the project was to

determine through a systematic review of the literature what evidence-based recommendations could be proposed to curb recurrent fall incidents among these institutionalized geriatric residents and break the vicious cycle of falls in the facility. The evidence suggested ways to remove barriers and enhance facilitators, apply alternative fall propensity assessment tools (incorporating personality dimension), minimize the effect of medication on mental processes affecting mobility, and improve staff knowledge and awareness of fall prevention and facilitate systematic monitoring and full implementation of fall reduction strategies.

References

American Association of Colleges of Nursing. (2006). The essentials of doctoral education for advanced nursing practice. Retrieved from https://www.pncb.org/sites/default/files/2017-02/Essentials_of_DNP_Education.pdf

Aparasu, R. R., & Chatterjee, S. (2014). Use of narcotic analgesics associated with increased falls and fractures in elderly patients with osteoarthritis. *Evidence-Based Medicine, 19*(1), 37-38. doi:10.1136/eb-2013-101401

Barbe, T., Kimble, L. P., & Rubenstein, C. (2018). Subjective cognitive complaints, psychosocial factors and nursing work function in nurses providing direct patient care. *Journal of Advanced Nursing, 7*4(4), 914-925. doi:10.1111/jan.13505

Bliese, P. D., Edwards, J. R., & Sonnentag, S. (2017). Stress and well-being at work: A century of empirical trends reflecting theoretical and societal influences. *Journal of Applied Psychology, 102*(3), 389-402. doi:10.1037/apl0000109

Bökberg, C., Ahlström, G., & Karlsson, S. (2017). Significance of quality of care for quality of life in persons with dementia at risk of nursing home admission: A cross-sectional study. *BMC Nursing*. *16*(39), 1-11. doi:10.1186/s12912-017-0230-6

Burns, E., & Kakara, R. (2018). Deaths from falls among persons aged ≥65 years - United States, 2007-2016. *Morbidity and Mortality Weekly Report, 67*(18), 509-514. doi:10.15585/mmwr.mm6718a1

Cameron, I. D., Dyer, S. M., Panagoda, C. E., Murray, G. R., Hill, K. D., Cumming, R. G., & Kerse, N. (2018) Interventions for preventing falls in older people in care

facilities and hospitals. *Cochrane Database of Systematic Reviews*, 9, 1-67.doi.10.1002/14651858.CD005465.pub3.

Curtis, K., Fry, M., Shaban, R. Z., & Considine, J. (2017). Translating research findings to clinical nursing practice. *Journal of Clinical Nursing, 25*(5-6), 862-872. doi. 10.1111/jocn.13586

Daniel, J. F. (2016). Purposeful and timely nursing rounds: A best practice implementation project. *JBI Database of Systematic Reviews & Implementation Reports*, *14*(1):248-267. doi:10.11124/jbisrir-2016-2537

DataUSA (n.d). Culpeper County. Retrieved from https://datausa.io/profile/geo/culpeper-county-va/

Deloris, J. (2014). Evidence-based fall management in nursing homes. *Graduate Research, Bellarmine University.* Retrieved from https://scholarworks.bellarmine.edu/cgi/viewcontent.cgi?article=1008&context=tdc

Dhargave, P., & Sendhilkumar, R. (2016). Prevalence of risk factors for falls among elderly people living in long-term care homes. *Journal of Clinical Gerontology & Geriatrics*. *7*(3), 99-103. Retrieved from https://www.sciencedirect.com/science/article/pii/S2210833516300181?via%3Dihub#!

Dowling, A., M., & Finch, C. F. (2009). Baseline indicators for measuring progress in preventing falls injury in older people Injury Risk Management Research Centre, University of New South Wales. *Australia and New Zealand Journal of Public Health*, *33*(5). 413-417.doi:10.1111/j.1753-6405.2009.00421. x

Dyck, D., Thiele, T., Kebicz, R., Klassen, M., & Erenberg, C., (2013). Hourly rounding for falls prevention: A change initiative. *Creative Nursing, 19*(3), 153-8. doi. http://dx.doi.org.ezp.waldenulibrary.org/10.1891/1078-4535.19.3.153

Eriksson, J. K., Hildingh, C., Buer, N., & Thulesius, H. (2016). Seniors' self-preservation by maintaining established self and defying deterioration - A grounded theory. *International Journal of Qualitative Studies on Health and Well-Being*, *11* (30265), 1-9. doi:10.3402/qhw.v11.30265

Fox, P., & Hookar, K. (2015). Personal constructs action. In *The Encyclopedia of Adulthood and Aging*, S. K. Whitbourne (Ed.).doi :10.1002/9781118521373.wbeaa117

Hamm, J. Money A. G., Atwal A., & Paraskevopoulos, I. (2016). I. Fall prevention intervention technologies: A conceptual framework and survey of the state of the art. *Journal of Biomedical Informatics, 59,* 319-345. doi. 10.1016/j.jbi.2015.12.013

Higgins, J. P., Altman, D. G., Gøtzsche, P. C., Jüni, P., Moher, D., Oxman, A. D., … Cochrane Statistical Methods Group. (2011). The Cochrane collaboration's tool for assessing risk of bias in randomised trials. *BMJ (Clinical research ed.), 343*, 1-9. d5928. doi:10.1136/bmj.d5928

Holland, P. J., Allen, B. C., & Cooper, B. K. (2013). Reducing burnout in Australian nurses: The role of employee direct voice and managerial responsiveness. *International Journal of Human Resource Management. 24*(16), 3146-3162. doi:10.1080/09585192.2013.775032

Kamińska, M. S., Miller A., Rotter, I., Szylińska, A., & Grochans, E. (2018). The effectiveness of virtual reality training in reducing the risk of falls among elderly people. *Clinical Intervention in Aging, 13,* 2329–2338. doi: 10.2147/CIA.S183502

Kloseck, M., Crilly, R. G., & Gibson, M. (2008). Can personality theory help us understand risk of falls? *Journal of Rehabilitation Research and Development, 45*(8), 1125-1134. doi:10.1682/JRRD.2007.08.0135

Kocic, M., Stojanovic, Z., Nikolic, D., Lazovic, M., Grbic, R., Dimitrijevic, L., & Melankovic, M. (2017). The effectiveness of group Otago exercise program on physical function in nursing home residents older than 65 years: A randomized controlled trial. *Archives of Gerontology and Geriatrics, 75*(2018), 112–118. Retrieved from https://www.sciencedirect.com/science/article/abs/pii/S0167494317303394

Liu-Ambrose, T., Nagamatsu, L. S., Hsu, C. L., & Bolandzadeh, N. (2013). Emerging concept: 'Central benefit model' of exercise in falls prevention. *British Journal of Sports Medicine, 47*(2), 115-117 doi:10.1136/bjsports-2011-090725

Marvin, V., Ward, E., Poots, A., J, Heard, K., Rajagopalan, A., & Jubraj, B. (2017). Deprescribing medicines in the acute setting to reduce the risk of falls. *Journal of Hospital Pharmacy,* 24 (1), 11-14 doi:10.1136/ejhpharm-2016-001003

McCawley, K. C. (2017). Fall prevention in skilled nursing facilities: A multidisciplinary proactive team approach to avoid negative health outcomes and legal pitfalls. *American Health Lawyers Association*. Retrieved from https://www.healthlawyers.org/Members/PracticeGroups/PALS/ExecSumms/

Documents/Fall_Prevention_SNFs_ES.pdf

Nunan, S., Brown, W. C., Henwood, T., & Parker, D. (2018). Fall risk assessment tools for use among older adults in long-term care settings: A systematic review of the literature. *Australas Journal of Ageing, 37*(1), 23-33. doi:10.1111/ajag.12476

Pajnkihar, M., McKenna, H., Štiglic G., & Vrbnjak, D (2017). Fit for practice: Analysis and evaluation of Watson's theory of human caring. *Nursing Science Quarterly, 30*(3), 243-251. Retrieved from https://journals-sagepub-com.ezp.waldenulibrary.org/doi/pdf/10.1177/0894318417708409

Peters, J. P. M., Hooft, L., Grolman, W., & Stegeman, I. (2015). Reporting quality of systematic reviews and meta-analyses of otorhinolaryngologic articles based on the PRISMA statement. *Plos One*, *10*(8), 1–11. doi:10.1371/journal.pone.0136540

Punjani, S. (2013). Comparison and contrast of Orem's self-care theory and Roy's adaptation model. *Journal of Nursing*, *3*(1), 1-5. Retrieved from https://search-proquest-com.ezp.waldenulibrary.org/nahs/docview/1473907117/fulltextPDF/BCA1B63EFB2348F9PQ/1?accountid=14872

Scarpina, F., & Tagini, S. (2017). The stroop color and word test. *Frontiers in Psychology, 8* (557), 1-7. doi :10.3389/fpsyg.2017.00557

Sergio-Martinez, M., Cancela, J. M., &Varela, C. (2016). Influence of cognitive impairment on fall risk among elderly nursing home residents. *International Psychogeriatric*, *28*(12), 1976-1985. doi:10.1017/S1041610216001113.

Sherrod, B., Brown, R., Vroom, J., & Sullivan, D. (2012). Rounding with purpose. *Nursing Management, 43*(1), 32-38. doi: 0.1097/01.NUMA.0000409925.39096.19

Sterke, C. S., Panneman, M. J., Erasmus, V., Polinder, S., & Beeck, V. Increased care demand and medical costs after falls in nursing homes: A Delphi study. *Wiley Journal of Clinical Nursing*, *27*(13-14), 2896-2903. doi:10.1111/jocn.14488

Taylor. E. (2009). The mystery of personality: A history of psychodynamic theories. *Journal of the History of the Behavioral Sciences*, 46(3), 314–315. doi: 10.1002/jhbs.20443

Teresi, J., A, Ramirez, M. Remler, D., Elis, J., Boratgis, G., Silver, S....Dichter, E. (2013). Comparative effectiveness of implementing evidence-based education and best practices in nursing homes: Effects on falls, quality-of-life and societal costs. *International Journal of Nursing Studies*, *50*(4*).* 448-463. doi:10.1016/j.ijnurstu.2011.07.003

Toole, N., Meluskey, T., & Hall, N. (2016). A systematic review: Barriers to hourly rounding. *Journal of Nursing Management, 24*(3):283-90. doi:10.1111/jonm.12332

Tucker, S. J., Bieber, P. L., Attlesey-Pries, J. M., Olson, M. E., & Dierkhising, R. A. (2012). Outcomes and challenges in implementing hourly rounds to reduce falls in orthopedic units. *Worldviews on Evidence-Based Nursing, 9*(1*), 18-29*. doi:10.1111/j.1741-6787.2011. 00227.x

Vlaeyen, E., Stasa, J., Leysensa G., Van der Elsta, E., Janssensa, E., Dejaegerb, E.…Milisen, K. (2017). Implementation of fall prevention in residential care

facilities: A systematic review of barriers and facilitators. *International Journal of Nursing Studies*, *70*, 110-121. doi: 10.1016/j.ijnurstu.2017.02.002

Wagner, L. M., Damianakis, T., Mafrici, N., & Robinson-Holt, K. (2010). Falls communication patterns among nursing staff working in long-term care settings. *Clinical Nursing Res*earch, *19(3)*, 311-326. doi:10.1177/1054773810370995

Walker, G. M., Armstrong, S., Gordon, A., Gladman, J., Robertson., M., Ward, M….Logan. P. A. (2015). The Falls in Care Home Study: A feasibility randomized controlled trial of the use of a risk assessment and decision support tool to prevent falls in care homes. *Sage Journals*. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/26385358

White, K. M., Dudley-Brown, S. & Terhaar, M. F. (2016). Translation of evidence into nursing and health care practice (2nd ed.). New York, NY: Springer.

Yun, D. & Choi, J. (2019). Person-centered rehabilitation care and outcomes: A systematic literature review. *International Journal of Nursing Studies*, *93* (2019) 74–83. Retrieved from https://doi.org/10.1016/j.ijnurstu.2019.02.012

Zubkoff, L., Neily J., Quigley, P., Delanko, V., Young-Xu, Y., Boar, S., & Mills, P. D, (2018). Preventing falls and fall-related injuries in state veterans' homes: Virtual breakthrough series. *Collaborative Journal of Nursing Care Quality*. *33*(4), 334-340. doi:10.1097/NCQ.0000000000000309

Appendix: Literature Table

Author/year	Design	Methods	Setting	Participants	Data analysis
Cameron et al. (2018)	RCT	Independent screening for abstract, full text, study selection, risk for bias and data extraction	-Long-term care facility -Hospital	Older residents	Used GRADE approach to assess quality of evidence

Author/year	Design	Methods	Setting	Participants	Data Analysis
Teresi, et al. (2013)	Quasi experimental	Random after exclusion of Meluskey, T., & Hall, N. (2015). non-eligible studies	Nursing Homes/Long-Term facilities	Older residents in nursing homes	Comparison of fall rates in 2 groups with a control group in 180 days Estimate of the amount of saved money
		Staff training in Standard training or training and implementation modules, or training and			

		implementation modules plus surveyor training Assessment of outcomes through MDS.			

Table continues

Author/year	Design	Methods	Setting	Participants	Data Analysis
Vlaeyen, E. et al., (2017)	Quantitative qualitative and publications generated through mixed methods	Compared literature review on multidimensional impact of falls, and personality, fall and aging.	Nursing homes in urban, suburban, community nursing homes, nearby rural area. Facilities with skilled and long-term care from Canada and USA with size ranging from 36-273 beds	For quantitative studies: Administrators and directors of nursing For quantitative studies: -2 physicians -2 masters prepared nurses and 2	PRISMA was utilized to appraise publications and descriptive analysis (raw numbers, means and percentages). Was adopted to analyze data Exploration of

			nurse practitioners -117 staff members including	the 6 key stages (familiarizatio n, thematic framework
			nursing assistant, housekeepers, direct care nurses, medical staff, directors, assistant directors, staff development specialists, nurse supervisors, change users, medication technicians, quality assurance nurses, change managers, occupational and physical therapists focus groups members (n=72) include Licensed nurses, special care aids, dietary aides,	identification, indexing, mapping and interpretation for priori codes development. Conceptual framework: “speeding the adoption of health care programs”. Rogers’ theory on stages of adoption Rogers’ diffusion of innovation, Model grounded theory, and focus group methodology (Green hithe at al. -Quality of long-term care framework
			Mixed	

				-41 staff members (RN and LPNs, ancillary personnel	

Table continues

Author/year	Design	Methods	Setting	Participants	Data Analysis
Kloseck et al.(2008)	Qualitative	Compared literature review on multidimensional impact of falls, and personality, fall and aging.	Institutionalized setting	Gerontologic patients outside their home	Correlative inference between aging, fall, and personality applied to Hooker and McAdams's personality's foci model.