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Improving Fall Risk Knowledge Through Staff Education In An Assisted Living Facility

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This is to certify that the doctoral study by

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

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Walden University
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Abstract

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MS, Walden University, 2015

Project Submitted in Partial Fulfillment

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Abstract

Patient safety and fall prevention are crucial for nurses and healthcare workers especially in assisted living facilities considering the age and health status of the patients. Low staff knowledge of fall risk measures in an assisted living facility may have contributed to an increase in the number of falls recorded in the facility by 20% in the last 2 years. This project addressed the questions of whether an education project could increase staff's level of knowledge on fall risk measures, and whether any improved knowledge would coincide with the number of falls per patient day in the assisted living facility? Adult learning theory and Lewin's theory of change informed the development of the project, which employed an educational intervention to improve the knowledge and performance of staff. Evidence was generated from data on prior staff knowledge of fall risk factors, educational materials, and use of paper forms in pre-and post-test assessments that identified staff knowledge of risk factors. Group means and proportional differences were examined before and after staff education. Staff knowledge of fall risk measures was statistically significantly increased, and increased knowledge correlated was statistically significantly correlated with fewer falls post-implementation. This project highlights the implications for positive social change given that vulnerable populations often receive care in assisted living contexts. There is a need for high-quality and safety-oriented care because of the danger of adverse patient care outcomes and the economic necessities of providing efficient care that avoids preventable complications. This project may inform efforts in other similar contexts that are seeking to improve care in the same way.

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Dedication

This project is dedicated to God Almighty for His infinite mercy and compassion, without whom my life is worthless. To my family, Victor Ike (My only love), my husband, and Victory, Precious, Glory, Fortune, Samuel, David, and Daniel, my children, I dedicate this success to your perseverance, understanding, support, encouragement, and prayers. May this success further unite our family.

Acknowledgments

I will start with a big thank you to my family, the Ike family, for their sincere support, and the Madu family, for their prayers and kind words. Mr. Chimalex, thank you for your assistance. I am delighted to say thank you to my chair, Dr. S. Anderson, whose understanding, and gentility cleaned debris off my eyes about getting this project done. I appreciate my committee members, Dr. M. Martin, Dr. C. Wheeler, and Dr. J.E. Hann, (my DNP project director), for their constructive and diligent directions throughout this rigorous journey. To all my instructors at Walden University from the master's degree level to the doctoral level, I love you all because I am a "Straight A" academic student due to your support. I acknowledge all my friends for their encouragement and support. Thank you, Mr. Jumu, Mr. Bola, Ms. Black, and all the staff and patients of my project site. I am so excited to add the title "Dr., A. IKE" to my name, which has been my greatest expectation in life. To God Be the Glory.

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Section 1: Nature of the Project

Introduction

Falls and injuries by patients in assisted living facilities are problematic for the patients and the facilities where they reside. Although researchers have identified many factors (e.g., Staffing Workload; Smith et al., 2011) that contribute to patient falls, and have examined the poor knowledge of falls and patient safety of the staff/workers who take care of these patients. In this project, I explored whether an increase in health workers' knowledge of fall risk measures correlates with reducing fall incidents recorded in this facility. Zuyev, et al., 2011) explained how using a tailored evidence-based approach in translating the usual fall risk assessment into a decision support intervention relates to fall prevention in patients.

The site for this fall prevention education was an assisted living facility comprising about 150 inpatient beds and 40 workers who directly take care of them. The study population included workers of different levels with responsibility for taking care of the patients in this facility. The pre-implementation plan for the analysis involved assessing the knowledge of these nurses through a quantitative form of pretesting. I administered fall risk education as the implementation plan to improve the knowledge of fall risk measures and staff level of expertise. I issued a quantitative post-test as a (post-implementation activity). I monitored the number of falls within 3 months of giving the staff education. I used inferential statistics and chi-square analysis to determine the staff education outcome on fall risk measures. Information derived from the literature review and health education handout informed the project.

Problem Statement

The problem addressed in the project was the increasing cases of falls occurring in an assisted living facility by about 20% in the last 2 years. Patient falls and injuries associated with these patients' falls are problematic for both the patients and the facility. Experts have identified many factors as contributors to patient falls, However, they have addressed the poor knowledge of fall risk factors by staff/workers who take care of these patients. Zuyev, et al., (2011) explained how using a tailored evidence-based approach in translating the usual fall risk assessment into a decision support intervention relates to the status of fall prevention in patients.

Purpose Statement

Some researchers like King et al., (20118) have addressed the impact of fall prevention on nurses and care of fall risk patients, causes, and possible complications of patient fall prevention strategies. The data and literature are mostly on geriatric patients, with evidence from some literature indicating that educating staff and raising awareness of the fall risk factors can reduce the incidence of falls (Mitchell & Lawes, 2007). Mitchell and Lawes (2007) also emphasized that organizational leaders can identify the best type of education for their staff. I addressed the increasing incidence of falls in this assisted living facility by providing evidence-based staff education. I conducted the project to close the gap caused by restricted knowledge of fall risk measures of the staff taking care of patients in this facility.

Nature of the Doctoral Project

I used a pre-test, post-test, and -a group only *t*-test design model in a practice-oriented setting to determine if staff members' knowledge of fall risk factors increased after education. I also identified whether the number of falls in the facility decreased following evidence-based education. Within 3 months of the project, all the staff were pre-tested and given the fall risk measures' handouts and education. I recorded the number of falls per patient day within the 3 months and compared this number with the number of falls per patient days before the project. I used inferential statistics to analyze project data, Findings showed an improved knowledge level of workers who give direct care to patients on fall risk measures based on the differences in scores on the pre-and post-tests. Falls per patient days recorded at the end of the 3 months showed a high probability of a sustainable, significant reduction in fall incidences.

Significance

At the end of the 3 months of assessment, testing, and education, all 40 participating staff members received instruction on fall risk measures. The post-test showed an increase in scores to confirm the staff's improved knowledge level on fall risk measures. There were some statistically significant differences in the number of falls per patient days 3 months before implementation and the number of falls 3 months after implementation. The differences provided evidence to accept the alternative hypothesis. The incidences of falls per patient days before the project were higher than the number of falls during and after implementation, indicating improved knowledge for fall risk factors and supporting rejection of the null hypothesis. The project had positive impacts on

patient care outcomes and impressed stakeholders who observed improvement in the local facility problem.

Summary

The problem addressed in the project was the increase in the number of falls in the assisted living facility due to a lack of staff knowledge on fall risk measurement. An increase in staff expertise in this facility with a resultant reduction in falls was confirmed. As I discussed in the subsequent sections, the staff education improved staff knowledge and reduced the number of falls recorded.

Section 2: Background and Context

Introduction

Prevention of falls is an obvious task of every staff working in an assisted living facility. This is imperative considering the age group and health status of people in the assisted homes (King et al., 2018). This project aimed to increase the staff's level of knowledge on the fall risk measures in the project facility to reduce the number of falls post-project. If the team does not understand the strategies required to prevent falls, fall rates will continue to rise, increasing the danger of adverse patient care outcomes. Therefore, there is a need to bridge the gap between poor knowledge of fall risk measures and rates of falls in this facility.

Health education for the assisted living facility's staff members increases their knowledge of fall risk factors that are correlated with the number of fall incidents per patient day (King et al., 2018). The American Geriatric Society (2006), as recommended by Moncada and Mire (2017), supports the annual screening of all patients at the age of 65 and above for a history of falls or fall risk-related factor-like impairment in balance. It is imperative for health workers who care for assisted living facility patients to connect to technology in practice and embrace the ongoing change in the healthcare landscape. Continuing education and staff development are fundamental components of being a professional nurse. Price and Reichert (2017) reiterates how ongoing training and education on nurses creates insights into the career satisfaction of nurses across different career stages pointing also at their ability to provide quality patient care. The project site serves mostly geriatric patients, and the leaders engage in efforts to change their

environment and staff knowledge to assure patient safety and satisfaction. The assisted living members and the staff comprise people from different racial representations, including Whites, Blacks, Asians, and Hispanics.

Concepts, Models, and Theories

The goal of staff education in this facility is for staff to use their improved knowledge of fall risk measures to care for the patients in this facility and reduce fall incidents. I completed a need assessment of this facility in terms of fall prevention, integrated best practices to improve fall risk knowledge in the project. I set goals to maximize positive outcomes and established implementation strategies for proper health education. The staff and other stakeholders showed readiness to benefit from the health education program and promote fall prevention.

The theoretical framework for this fall prevention change effort was Lewin's theory of change, which approaches change using a three-step process of unfreezing, moving, and freezing (Lewin, 1935) as cited in Schweikert, (2018). In the unfreezing stage, staff members let go of their old way of thinking and carrying out their nursing tasks attributed to a lack of adequate knowledge. Following Lewin's (1935), as cited in Schweikert, (2018) model, the goal in this stage is for them to recognize the problem and need to make a change; this goal is achieved by fall risk education to enable learning and a change in their previous attitudes. Then, the staff is encouraged to "move, or transition" allowing for action plan implementation. Resistance is the main issue at this level, but continued, didactic education and support from the facility directors and I resulted in a positive outcome that led to the next stage of reduced fall incidences. The successful

breakthrough from the moving step gives birth to the model's final stage: the freezing phase when change becomes imminent and permanent. According to Lewin, at this stage, the team (here, the staff) accepted the change with improvement in their knowledge of fall risk factors and a resultant reduction in fall incidences.

I also used the adult learning theory. This theory favors adult education with techniques focusing attention on using short-answer tests in projects or activities to ascertain prior knowledge before the main activity introduction (Baird, 2016). Course designers incorporated the adult education models to study structural opportunities and to improve self–directed learning (Price & Reichert, 2017). A pretest is administered before presenting learning material, with a post-test administered to ascertain knowledge acquisition.

Relevance to Nursing Practice

Nurses are at the forefront of health care delivery with direct patient contact. White and Dudley–Brown (2012) argued that staff in health care institutions must follow models based on proven theory to become change agents. Because fall prevention remains a crucial issue in all health care organizations, Currie, (2008) rules promoting the protection of patients from falls and injuries persist. Nurses and other staff remain patient educators, and their roles in fall prevention cannot be underestimated. A multidisciplinary approach must be strengthened with adequate fall risk knowledge and care planning to promote patient safety. The nursing profession emphasizes applying evidence-based practice guidelines in patients' care for the promotion of positive patient care outcomes (Chien, 2019). When nurses and other staff workers show improved knowledge levels

from the delivery of highly-rated care devoid of fall incidents, the profession is rated highly (Chien, 2019).

Standard practices and quality indicators exist in nursing practice to prevent falls in patients. The American Nurses Association (ANA) established quality indicators in (1988) that link nursing care to patient outcomes as a hospital-based fall program measurement and improvement in high-reliability organizations that impact the patient and organization (Quigley & White, 2013). The literature reviewed focuses on identifying related research that addresses the effects of staff education on falls and identifiable fall risks in an inpatient facility.

Staff Education on Falls and Fall Risks

This staff education project aimed to improve nurses' fall risk knowledge in an assisted living facility; with the overall goal of reducing fall incidences. An early step in this project involved exploring research and health theories connected with falls and patient safety. Using PubMed and the Cochrane Database of Systematic Reviews, I researched fall risks, prevention, and care of facility inpatients. Yang et al., (2019) confirmed that both wearable and Resident Assessment Instrument – Home Care (RAI-HC) assessments could contribute to falling risk classification. Therefore, future studies in fall risk assessment should consider using wearable technologies to support resident assessment instruments.

Teresi et al.'s (2018) study results did not reach a statistical significance due to low power. However, the authors argued that their findings on fall prevention in facilities

are clinically essential. They advocated that the findings should be implemented in interventions in extended-term care.

In reviewing the literature, I also discovered the Aachen Falls Prevention Scale by Rasche et al, (2019); Rasche et al., noted that the scale has a test accuracy comparable with that of the established methods in the initial investigation. The reviewers noted that users could independently perform the self-assessment at home without involving trained healthcare professionals.

In another study, Hsieh et al, (2018) found a fall risk application to be highly useable. They based this finding on interviews with older adults and high scores on the Systematic Usability Scale. Hsieh et al. advised including clear and straightforward instructions and preventative strategies to improve health. Some of these studies notably prove strong evidence of the importance of staff education preventing the increased risk of falls as indicated in Teresi et al. (2018), Coughlin et al. 2019), Francis-Coad et al. (2017), Borland et al. (2013), and Mitchell and Lawes, (2007).

I searched different databases to find literature on staff education on fall prevention and fall risks. These include CINAHL Plus with Full–Text and Academic Search Complete databases. The review supports that falls as a geriatric problem should be approached diversely to promote complex interventions. Using CINAHL Plus with a Full-Text database, I found a study by Colon- Emeric et al. (2017) that presented a negative result in terms of staff communication not providing the expected outcome of a fall quality improvement program. The authors called for new approaches to actualizing evidence-based care in nursing homes and similar facilities. In their cluster-randomized

study, Van-Gaal et al. (2010) observed that patients in hospitals and nursing homes are at risk for the development of often preventable adverse events. They noted that guidelines for the prevention of many types of adverse events are available, even though compliance with these guidelines appears to be lacking. Through education, a patient safety program allows staff members of the organizations to implement multiple procedures simultaneously and facilitates measures used to improve patient safety. The Agency for Health Care Quality [AHRQ, (Ganz et al., 2013)] has a quality indicator tool for assessing staff education and training practices to facilitate the integration of new knowledge on fall prevention into existing or new ways. The tool is confirmed to identify areas of improvement and develop educational programs where they are missing (Ganz, et al., 2013).

Identifiable Fall Risks in an In-Patient Facility

Geriatric patients are generally at risk for falls secondary to aging processes, frailty, and improper footwear. Hartung and Lalonde (2017) noted the impact of non-skid footwear on fall rates in hospital units, supporting another study by Frances- Coad et al. (2017) of 183 falls of older patients in a facility. Moncada and Mire (2017) observed that the 1% of patients who experience falls in facilities represent 11,000 critical falls yearly in the United States. Moncada and Mire (2017) noted that risk factors that encourage nursing home placement such as falls, and hip fractures occur three-folds in patients in the hospital and related facilities when compared with people in the community. Patients in facilities who received direct care from staff workers take steps to prevent falls and develop independence.

Fall Prevention

The American Geriatric Society recommends yearly screening of any patient 65 years and older to rule out any fall history or balance problems (Moncada & Mire, 2017). The U.S. Preventive Service Task Force and the American Academy of Family Physicians (2018) do not support the use of many actions that are not specific to falls as a way of fall prevention, especially on older people who live in the community. However, they suggested that such an approach might be appropriate in individual cases, which justifies this health education project.

According to Vonnes and Wolf (2017), the promotion of patient and family participation for safety and fall reduction is achieved by the fall risk agreement introduced on admission. Vonnes and Wolf advocated that the staff caring for patients in assisted living facilities or nursing homes need to know and follow up with family participation. They stated that fall risk agreements with patients and relatives upon admission to a facility will encourage family involvement in reducing falls. This project may have an aspect that might limit concluding the effectiveness of staff education on fall risk measures, documentation, and assessment of fall incidents. Additional studies, including multivariate analysis, might be needed to confirm the project outcome beyond the project site (Moncada & Mire, 2017).

Falls can occur in people of all ages, with increased incidence with age advancement. In a systematic review and meta-analysis study by Coussement et al. (2008), eight out of 10 studies on fall prevention met inclusion criteria. In a randomized trial of a cluster study comparing patients' fall rates in four urban U. S. hospitals during a

6 - month intervention period, the number of patients with falls differed between control (n = 87) and intervention (n = 67) units (p = .02), showing that the use of a fall prevention tool kit in hospital units compared with usual care significantly reduced rate of falls (Dykes et al. (2010).

Individualized fall assessment was recommended for patients older than age 65, and repetition of staff education programs equips staff current with the tools and knowledge of fall prevention measures. Morello et al. (2012) conducted a pragmatic, stepped-wedge, cluster-randomized controlled trial of 24 acute medical and surgical wards from six hospitals in Australia; The researchers investigated and confirmed the efficacy of the outcome and hospitalization cost data prospectively collected for approximately 16,000 patients admitted to participating units during the 12-month trial period (Morello et al., 2012). Falls are frequent among the elderly, therefore, fall prevention should be considered an issue that must be incorporated in most health care projects.

Designing a Falls Prevention Staff Education Plan

The constant change in today's healthcare landscape requires nurses, especially those who care for geriatric inpatients, to stay connected to technology and practice. According to ANA's code of ethics, nurses' responsibility is to maintain competence and continue personal and professional growth; Schneider and Good (2018) therefore observed that nurse education programs should engage adult learners and inspire their reflection. Continuing education and staff development are fundamental components of being a professional nurse. ANA, (2019) created a system to formally measure continuing

education credits in 1975 with much debate over how much continuing education is needed to maintain competency. Schneider and Good observed the most significant barriers to learning in the inpatient facility to be lack of time, negative staff perceptions about continuing education and professional development, and high health care cost secondary to paid training time. Schneider and Good mentioned important deterrent factors to improved staff knowledge and performance as staff shortages, inconvenient places and times, fatigue, and inability to concentrate after working, family and personal commitments, lack of interest in topics, past experiences of negative/inadequate programs, lack of program variety, poor planning, inappropriate teachers, and lack of manager/administrative support.

According to the U.S. Department of Education (2018), there is no single theory of learning that can be applied to all adults. The literature of more than a century has yielded various models, ideas, and explanations that make up the adult learning knowledge base. Carrol et al. (2010), Tzeng, 2010, and Tzeng and Yin (2010) suggested that hospitalized older patients are at higher risk of falls due to advanced age, low balance, effects of medications, improper sight and balancing, poor cognition, emergency bathroom calls, and multiple disease comorbidities. For staff to respond positively and implement learned behavior in the care of their clients to prevent falls, it is necessary to understand the risks, rate, consequences, and general implications of falls by patients.

I designed the education to acquaint the staff of this facility with the tools and information necessary to promote proper documentation and care of fall preventive measures in an assisted living setting. Nurses received information on the appropriate

method of documentation and assessment of fall preventive measures. The adult learning theory was applied to this project because it provided insight into how adults learn, which helped instructors be more effective and responsive to the learners (U.S. Department of Education, 2018).

Local Background and Context

I conducted the fall prevention education project in an assisted living facility, The project goal was to increase staff knowledge on fall risk measures in this facility, comprising about 150 beds. I considered the elevated fall incidence and the age of the patient population of this setting, which mainly was 50 years and above, with a few younger patients having neurological disabilities. Forty staff members who directly take care of the patients in this facility formed the study's general population. The pre-implementation plan for the qualitative analysis included assessing the prior knowledge of these staff members through pretesting. I designed the education to acquaint the staff of this facility with the tools and information necessary to promote proper documentation and assessment of fall risk/preventive measures. The information derived from the literature review and health education handout impacted the staff education outcome, as I further discussed in Section 4.

Role of the DNP Student

I applied pre-test, education, and post-test strategies to determine the institution's knowledge level. With the preceptor's assistance, I compiled posttest results from the team and compared the facility's fall incidents. This established the staff ‘s knowledge

level. In subsequent sections of this project, I presented the outcome of the staff education project.

Summary

As the review of the literature indicated, the measurement of falls and efforts to improve the direct patient caregivers' activity and knowledge was vital to patient outcomes. Staff education cannot prevent all falls regardless of the level of experience of the caregivers. However, an adequate understanding of the risk factors can be added to the policies on fall prevention considering that falls are the most frequently reported adverse event (Quigley & White, 2013). Doing so may reduce the rate of falls among adults in an assisted living setting. Although the literature addresses the importance of staff education, few studies include fall documentation education as a form of adult learning. I addressed this gap by providing proper staff education on fall documentation and preventive risk measures assessment. importance of staff education, few studies include fall documentation education as a form of adult learning. I addressed this gap by providing proper staff education on fall documentation and preventive risk measures assessment.

Section 3: Collection and Analysis of Evidence

Introduction

There is extensive research on patient falls, including causes, prevention, and possible complications (AHRQ, 2020). In this project, I addressed the increasing incidence of falls in the assisted living facility. My focus was on implementing proper staff education to address the knowledge of fall risk measures by the staff taking care of patients in this facility. The data and literature were mostly on geriatric patients, with evidence from some literature indicating that educating staff and raising awareness of fall prevention can reduce the incidence of falls (Mitchell & Lawes, 2007). Mitchell and Lawes (2007) also emphasized that organizational leaders can identify the best type of education for their staff.

Practice-Focused Questions

In concluding this project, I sought to identify whether any increase in the staff's knowledge of fall risk measures improved the number of fall incidents recorded in this facility during and after the project's period. The practice-focused questions are as follows:

Practice Question #1: Is it possible for an education project to increase the staffs' level of knowledge on fall risk measures and reduce the number of falls in an assisted living facility?

Practice Question #2: Will the number of falls in the facility per patient day decrease following staff education on Fall risk factors?

Sources of Evidence

The primary source of evidence came from testing the staff's knowledge before and after the fall risk education section. The participants received a pretest, education, and post-test based on information from the literature review and a health education handout. I used these data to determine whether a change in knowledge occurred after the educational intervention. Secondary data in the organization on falls both before and after the educational intervention was used to determine if a difference in health outcomes occurred following the educational intervention. Therefore, I measured both knowledge and a health outcome dependent on the knowledge to determine whether the educational intervention contributed to a change in both. Higher post-test scores by the staff members indicated improved understanding.

Other sources of evidence included peer-reviewed literature on falls, fall prevention, and staff education. Some studies offer strong evidence of the importance of staff education in reducing the risk of falls as indicated in Teresi et al. (2018), Coughlin et al. 2019), Francis- Coad et al. (2017), Borland et al. (2013), and Mitchell and Lawes (2007). I also used secondary data from the organization's incident records on falls before, during, and after the educational intervention to determine if a change in health outcomes has occurred. See Appendices A, B, and C for materials related to the project evaluation, staff education, and intervention, respectively. See Appendices A, B, and C for materials related to the project evaluation, staff education, and intervention, respectively.

Participants

I conducted the project in an assisted living facility situated in the Northside area of Chicago with about 40 caregivers of different academic levels, cultures, and years of experience. At the time of the project, the staff comprised nurses, patient care technicians, and nurse directors, and the facility served approximately 150 clients. The patient population in this facility is mainly geriatric patients who are 60 years of age and above. The facility admitted affluent well-educated patients and requires staff who have proper knowledge of fall risk/preventive measures. This project was worthwhile because staff members requested an intensified education on fall risk measures to reduce expected fall incidents to zero as much as possible, other unforeseen conditions notwithstanding.

Procedures

The educational information focused on promoting fall risk knowledge of the staff in this inpatient facility. I based the pre-test on the information that I received from the workers who were interviewed who met the inclusion criteria. I interviewed three workers of different sexes and care levels, including a nurse, a health care technician, and a manager. After each education session, one person from the group taught back the demonstration. Haines et al. (2011) observed that the teach-back process is more helpful than the one- to one health counselor follow-up method in reinforcing a patient's understanding of health education content.

Protections

I did not commence the project until after I had obtained approval from the Walden Institutional Review Board (approval # is 02-02-21-0410445), and all relevant

bodies within the organization. There are no ethical or personal issues related to the project, which involved only the education of the staff on fall risk factors to improve their patient care outcome. I have not identified the project site, participants; or had any direct patient and client involvement in this project. I administered the health education to the staff involved with patient care after confirming their consent according to the guidelines in the *Manual for Staff Education: Doctor of Nursing Practice (DNP) Scholarly project.* I did not encounter any reluctance from the perspective of the participants; I believe the reason for this was that the education project aimed to enrich the workers' knowledge and improve their care performance and outcome to reduce fall incidences. The test scores were made anonymous and involved no ethical issues. The Institutional Review Board application was completed with the appropriate form, A, to obtain project site approval.

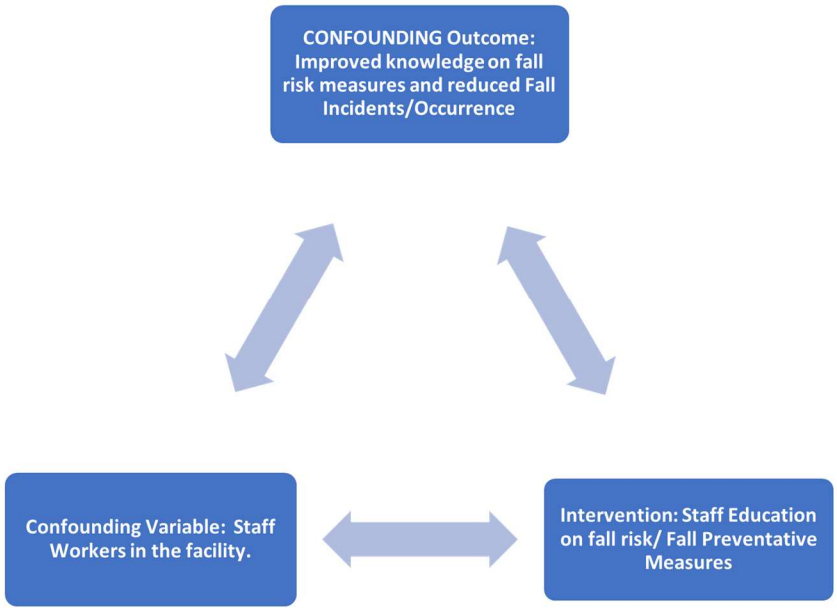
Analysis and Synthesis

The project addressed a gap in direct caregivers' knowledge level on fall risk measures, The staff education that I implemented increased their knowledge level. I used inferential statistics, specifically the paired t-test, to measure the change in the staff members' knowledge level on fall risk factors before and after the education intervention. I attributed any change to the educational intervention. If the staff did not understand the strategies required to prevent falls, fall rates will continue to rise, increasing the risk of adverse patient care outcomes. I provided instruction to staff recipients comprising 15 registered nurses, eight licensed practical nurses, and 17 patient care technicians regarding fall risks/preventive measures. My goal was to determine whether such knowledge decreases the number of falls in the care context.

The learning principles of adult learning theory apply to safety training, according to Galbraith and Fouch (2007). Thus, the theory can be used to measure the effectiveness of the education on fall risk factors by observing the staff's behaviors and reduction in fall incidents in the workplace. The education featured tenets of cognitive theory, to encourage facility staff to engage in critical thinking and problem solving, Galbraith and Fouch advocated providing hands-on problem–solving activities to the staff. Following Galbraith and Fouch. I used inferential statistics to determine the knowledge base of the team before (pre) and after (post) the teaching intervention. Paired- *t*-tests were used to compare the two test results, while chi-square analysis was used to compare reduced falls with knowledge level. Figure 1 illustrates the project intervention, variable, and outcome.

Figure 1

Illustration of Project Intervention, Variables, and Outcome



Project Variables

The measures of the dependent variables were falls, falls with injury, nurses with different levels of experience, and levels of education. The confounding variable comprised the staff members, whose intervention by participating in fall risk preventive education produced confounding outcomes of improved knowledge of fall risk factors, reduced number of falls, and improved patient care outcome. A fall is any unplanned descent to the floor (Hann & Staunton, 2013). As Hann & Staunton (2013) noted, falls can be grouped into five following categories. These include falls with no apparent injury, falls with no apparent injury, falls with minor bruises, falls with moderate injuries, falls with significant injuries, and falls resulting in death. Becker and Rapp (2010) observed that reducing the risk of falling can positively affect residents' quality of life to a considerable extent, mainly if prevention focuses on proactive and not repressive measures.

Summary

I used the information gathered from the pre-and post-tests after the education process to determine the extent of improvement in the workers' knowledge of fall risk factors. The result reflects the number of fall incidents among the facility's patients. I explained the findings in Section 4.

Section 4: Findings and Recommendations

Introduction

I gave pre-and post-test assessments to the staff in an assisted living facility. Within the first 3weeks, the team was pretested, given the handouts and education on fall risk measures, and post-tested to confirm knowledge gained. I subsequently audited all charts for the number of fall events that occurred for 3 months before and after implementation.

Findings and Implications

Before the application and implementation of the staff education project, the knowledge of the staff on fall risk factors was questionable based on previous research and the lack of an evidence-based application for healthcare staff in an assisted living facility (King et al, 2018). I developed this education project to increase the staff's knowledge on fall risk measures which will reflect on the improved quality of their care of patients and reduce the number of falls in the assisted living facility.

Methods

I used paper forms of pre-test prepared from questions on fall risk measures and practices compiled with SurveyMonkey tools for the educational need assessment. I used the same method for the posttest items derived from the educational materials and fall prevention practices; the posttest scores indicated the staff's knowledge of risk factors. I used the pre-and post-test scores for the first statistical inferential analysis measuring the change in staff members' knowledge level with a paired *t*-test. The change relates to the educational intervention. A second analysis measuring falls per patient day using chi-

square was also conducted. A reduction in the number of falls per patient day relates to the level of increase in the staff's knowledge. The facility already has a nurse director who uses online access to learning modules. Findings showed that the staff members did not prefer this format of instruction. I used the teach-back learning process as one of the learning options in education. Staff education sessions were carried out during varying periods of the day and night, to accommodate all workers taking care of the project's clients and populations.

The education project was the basis for finding out if improved knowledge of fall risk measures will reduce falls. The project group received a pre-test or preassessment, high-rate instructions on the facility protocol reviews for assessment, a unit orientation, and falls education handouts, and completed a fall risk assessment tool. Other materials used include journal articles, graphic presentations of fall risk factors, and information on staff responsibilities in preventing falls. After the education session, some staff taught–back the content. A question-and-answer session (post-test) was used to ascertain the level of understanding and knowledge acquired. The nurse manager and I monitored the number of falls per patient day and incorporated fall risk measures into patient care. Tables 1 and 2 include the results from the pre and post-tests.

Table 1

Totals of Pre- and Post-test Scores by Recorded Grade.

	Grade					
Test	A 90-100%	B- 80-89%	C- 70-79%	D- 60-69%	E- 59% & below	Total
Pre-test	3	4	15	10	8	40
Post-test	19	9	7	1	1	37

Total	22	13	22	11	9	80

Table 2

Pre- and Post-tests Results

S/N	Range (%)	Frequency	*M*	Pre-test (x)	Post-test (x-$_2$)
1	1-59	9	30.0	8	1
2	60-69	11	64.5	10	1
3	70-79	22	74.5	15	7
4	80-89	13	84.5	4	9
5	90-100	22	95.0	3	19
Total		77	348.5	40	37

Note. SN = Serial Number

I calculated scores in the following manner:

a. Mid-point (m) $= \frac{\text{Range}}{2}$ $\frac{1+59}{2} = 30$

$\frac{60+69}{2} = 64.5$

b. No. of samples (n) $= 5$

c. Mean (N) $= \frac{(\text{M} \times \text{F})}{n}$ $\frac{348.50 \times 77}{5} = 5{,}366.9$

d. Population Standard Deviation

$$\sigma = \sqrt{\sum \frac{(X_1 - \mu)^2}{\text{N}}}$$

Where:

N = Size of population

X = Each value from population

μ = Population means

$$\sigma = \sqrt{\sum \frac{(40 - 5366.9)^2}{77}}$$

$$\sigma = \sqrt{\sum \frac{(-5326.9)^2}{77}} = \sqrt{\frac{28{,}375{,}863.6}{77}}$$

$$\sigma = \sqrt{368{,}517.7} = 607.06$$

e. Standard Error (S^2)

$$\sigma\bar{x} = \frac{\sigma}{\sqrt{n}} = \frac{607.06}{\sqrt{5}} = \frac{607.06}{2.24}$$

$$= 271.01$$

f. T-Test (t)

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{(s^2\,(\frac{1}{n_1} + \frac{1}{n_2}))}}$$

Where:

X_1 and X_2 = Means of two groups compared

S^2 = Pooled Standard error of the two

$$t = \frac{40-37}{\sqrt{(271.01(\frac{1}{5} + \frac{1}{5}))}} = \frac{3}{\sqrt{(271.01 \times 0.4)}}$$

$$t = \frac{3}{\sqrt{108.40}} = \frac{3}{\sqrt{10.41}} = \underline{\underline{0.29}}$$

Hypothesis: The One Group Pre-test–Post-test Design (μ 1, X, μ 2)

A single pre-test measurement is where (μ 1) representing mean scores of pre-tests of all staff, and intervention in the form of staff education (X) given as the implementation, and a mean post-test score taken (μ 2). The μ1 is the pre-test score/knowledge The introduction of staff education based on fall risk/preventive measures and is represented by X, and μ 2 is the post-test score indicating knowledge

level recorded following staff education. The pre-test provides information about what the knowledge base could have been had the intervention (education) not occurred (H_0: $\mu 1 \leq \mu\ 2$ = null hypothesis, H_1: $\mu 1 > \mu\ 2$ = alternative view). A second analysis measuring falls per patient day using the chi-square was conducted- A t-test value of 0.29 shows greater evidence against the null hypothesis (H_0) with a significant difference.

Based on the alternative hypothesis (H_1), it is notable that an education project can increase the staff's level of knowledge on fall risk measures and reduce the number of falls in an assisted living facility.

I conducted a second analysis with chi-square to look at the proportion of falls before and after education. This was performed to indicate whether the number of falls after staff education changed. The calculations were as follows:

$$\text{Chi-Square} = \frac{(Observed\ Outcome)^2 - (Expected\ Outcome)^2}{Expected\ Outcome}$$

$$= \frac{(Pre-test) - (Post-Test)}{Post-Test}$$

Using Chi-Square

(a) $\frac{(3^2)-(19)^2}{19} = \frac{9-361}{19} = \frac{-351}{19} = \underline{\underline{-18.53}}$

(b) $\frac{(4)^2-(9)^2}{9} = \frac{16-81}{9} = \underline{\text{-7.22}}$

(c) $\frac{(15)^2-(7)^2}{7} = \frac{225-49}{7} = \frac{161}{8} = \underline{25.14}$

(d) $\frac{10^2-1^2}{1} = 100 - 1 = \underline{99}$

(e) $\frac{8^2-1^2}{1} = 64 - 1 = \underline{63}$

-19.55 -8.4 + 20.125 + 99 + 63 = 154.175

Finding the P-Value

(a) Degree of Freedom (df) = n-1 = 5-1 = 4

(b) Chi-Square = 154.175, approximately 16.00

(c) Using the Chi-square Table, 16.00 falls between 13.277 and 18.467

Therefore, P-Value is between 0.01 and 0.05

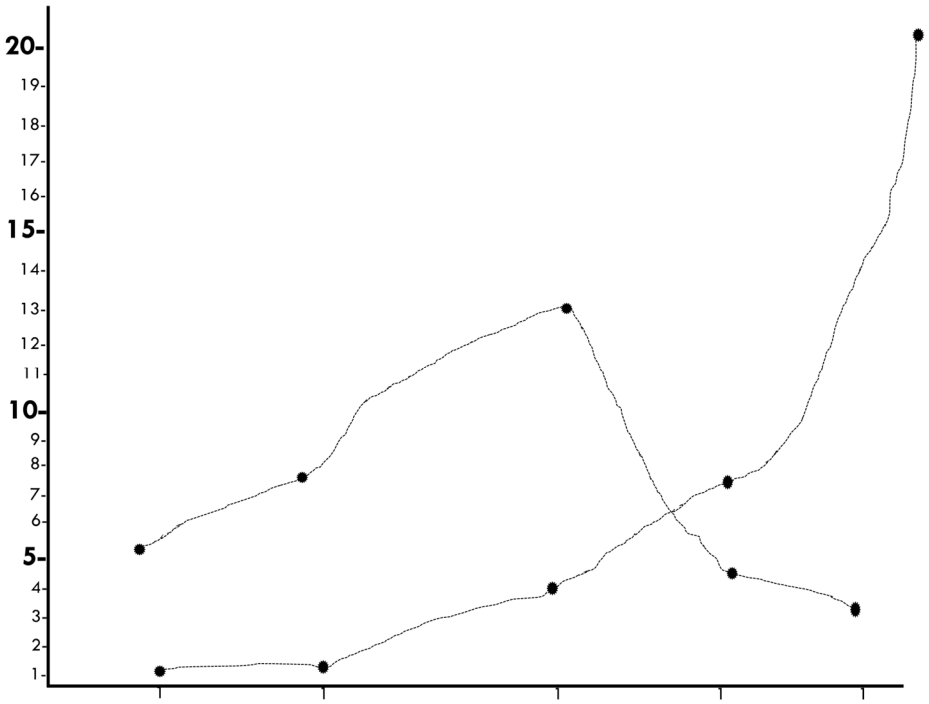
$P < 0.05$

$0.05 < P < .01$

Hence the P-Value is less than 0.05 ($p < 0.05$). Thus, the null hypothesis that there is no difference between the means is rejected, and it was concluded that a significant difference does exist.

Figure 2 is a histogram of staff grades for the pre and post-tests. The histogram shows staff grades increasing slightly in percentage with a rising number of falls in assisted living. The post-test grades increased in percentage indicating a reduction in the rate of falls.

figure 2: Histogram of Pre- and Post-test Grades



Social Change

A significant focus of Walden University is to promote positive social change (Laureate Education, 2010). Making a difference in direct caregivers' knowledge may help to promote safety and reduce falls and injuries in the facility. Pin and Spini (2016) observed that falls have social, physical, and mental health impacts on both the patients and staff, confirming the need for visible and social support in the fall. Durbin et al., (2016) stated in their study that social support promotes preventive measures to falls. I taught the caregivers the importance of being educated on fall risks. Because increased staff knowledge of falls may promote social, mental, and physical changes in the patients, the project is in line with Walden's social change emphasis.

Recommendations

The project aligns with the identified gap in the knowledge of fall risk behaviors and fall incidence, as noted in assisted living facilities. I sought to determine whether the high rate of falls in this facility was consistent with a low level of knowledge of identifiable risk factors by the nurses at the facility. By utilizing the staff education

approach in addressing this evidence-based problem, anticipate that there may be a corresponding reduction in falls following the educational intervention.

I recommend further research on the implications of not applying adequate knowledge of risk factors in the management of patients in assisted living homes, nursing homes, and hospital in-patients. It is also recommended for staff education, that pre-test, and post-tests be made a compulsory requirement that must be completed by any new staff to be hired to this institution.

Strengths and Limitations of the Project

The project on the improvement of staff knowledge on fall risk factors had a positive impact on the development of the staff knowledge, The project demonstrated that the application of evidence-based knowledge improved the staff's delivery of their duties with the positive health outcome of reduced fall incidence. The improved knowledge has strengthened the application and implementation of the already existing fall prevention policy in this institution by offering an improved method for recording incident cases, case profiling, and medical equipment usage.

The only limitation is the time constraint for the project completion, especially in this sensitive clinical problem. It is also clear that the project outcome is not what other institutions should expect due to the limited number of participants. The result can be applied to this institution and not for generalization to other institutions. The causation of fall incidences, generalization of project outcome cannot be implied while plans for further outcomes are made.

Section 5: Dissemination Plan

The process of project dissemination started from the beginning of the project. The plan, process, and implementation followed a sequence in which dissemination of the achieved change was a major part. I plan to disseminate the project. findings not only on ProQuest Dissertations & Thesis Global database but also in a poster to my immediate audience and an article in a journal of nursing. The poster, according to Hand (2010), is a potentially excellent way of spreading and establishing knowledge acquired from an education project. The poster provides an overview of the project, which encourages the reader (in this context, the staff of this institution) to access details from the person most passionate, insightful, enthusiastic, and knowledgeable about the research. (Hand, 2010).

Next Steps: I recommend further research on the implication of not applying adequate knowledge of risk factors in the management of patients in assisted living homes and even hospital in-patients. An appropriate next step from this project level is to extend the project to other health care or non- health care settings, present conferences at local and state levels, and sign up with people who are ready to implement the project in other contexts.

I will check back with my project site to see how the outcomes of this project change occur over time. Reassessment will be done after one year to see if the changes persist or if the fall rates are going back to the pre-project level, and therefore explore how the results persisted or not.

Analysis of Self

The project program assessment and evaluation also started from the beginning of the program. In this subsection, I reflect on the skills and knowledge I acquired and developed throughout the DNP program. I also explain the project outcome and my experiences in designing and implementing it.

Advancing in Nursing Practice

(ANA) (2019) supports the nursing profession's advancement and advocacy by championing the nursing profession and giving voice to nurses' essential role in advancing access to high--the quality and affordable care. Advancement in nursing entails nurses educating themselves about the possibilities to receive and give support to one another; be persistent; and have a lasting impact on one another, patients, and the administration (Nitz Ky, 2018). The staff education for this project improved nurses' knowledge on fall risk factors, thereby advancing the nursing and policy of the institution through the promotion of positive patient care outcomes. My DNP field experience covered the DNP Essentials (American Association of Colleges of Nursing, 2006), which are embedded in the other characteristics of my project's approaches. All eight DNP Essentials, including collaboration, communication, leadership, and research, were present in my practicum learning roles.

Leadership

Leadership is a vital role of a nurse. The project process equipped me with the ability to pilot and direct the staff education project for this institution's staff regardless of their qualifications, color, ethnicity, and years of experience. Leadership is the ability to

lead with the expectation of a successful outcome. With the preceptor's assistance as needed, I was able to conduct, direct, assist, answer questions, and problem-solve for my audience and project team members. I responded to organizational and system issues in healthcare by connecting interprofessional relationships between the institution's medical and non-medical staff. “Leadership” is presently my watchword, especially in the evaluation and problem-solving situations concerning ethics, culture, and direct patient care.

Promoting Quality Improvement

My knowledge and skills regarding the promotion of quality improvement increase because of my practicum experiences. For practice changes to occur, it is necessary for doctoral--prepared nurses to be in the position to provide useful data, level, and strength of evidence and review the quality of transmission to change through advocacy (Laureate ed., 2012a). These are the areas that I have developed during my practicum experience to improve quality development. By educating the staff members, I derived knowledge regarding the quality of care rendered during the practicum for the patients. I also gained more applied skills; by using computer technology, I was able to document fall cases, prepare incident reports, monitor the project outcome's progress, and statistically analyze results to implement quality improvement.

Improving Health Outcomes

The project aimed to improve the institution's procedures for preventing falls, which had increased in number per patient day. The organization's fall reputation changed with an improved health care outcome of reducing the number of falls per

patient day by 90%. A recorded change in the health care system confirms that today's change has drivers such as cost and quality in a constantly changing healthcare system. Therefore, my project experience saw my growth in realizing and teaching health care diversity into my DNP program for postgraduate use. Nurses can advocate for patients by ensuring safety, giving patients a voice, educating, and protecting their rights (Nitzky, 2018).

Informing Health Care Policy

My project experience informed me of the need to be involved in health policy issues, especially with this institution. I communicated one-on-one with the stakeholders, administrators, and other policymakers regarding policy proposals and related institutional matters. I communicated the problems identified to the respective policymakers following the appropriate channel of command. I asked the manager to discuss the issues with the administrators and explain how they put patients at risk conflicting with organizational/practice policy guidelines.

The DNP project work comprises didactic practical experience embedded with leadership roles, education, policy changes, and good communication through evidence-based practice with positive patient care outcomes. Nurses should be prepared to work together to solve nursing problems, recognizing that some negotiation and compromise may be necessary to improve the quality of health care and its outcome. Lack of adequate knowledge of fall risk factors by staff members of this assisted living facility contributed to the continued increase in the number of fall cases in the past 2 years. The result of the information gathered from the project outcome indicated that improved knowledge of the

staff on fall risk factors reduced the number of falls by 90% per patient admission day confirming the alternate hypothesis (*H1)*.

Summary

The educational program aimed to improve staff knowledge in the assisted living facility through an evidence-based educational program on fall risk factors. The project proved to be successful by reducing the number of falls recorded per patient day during the admission days. I answered the PICO question regarding whether proper health education on fall risk factors would improve the staff knowledge in this facility and if the number of falls per patient day would correspondingly lessen.

Measurement of falls and efforts to improve the performance and knowledge of the direct patient caregivers is of importance to patient outcomes. Even though not all falls can be prevented regardless of the level of knowledge of the caregivers, adequate knowledge of the risk factors can bolster policies on fall prevention. Considering that falls are the most frequently reported adverse event (Quigley & White, 2013), such education may reduce the event among adults in an assisted living setting.

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Appendix A: Project Evaluation

The effective program assessment and evaluation started from the beginning of the project. It depicts a thoughtful reflection of the skills and knowledge acquired and developed by the staff of this institution. The assessment also reflects my growth throughout the project and after.

Advancing in Nursing Practice is a major factor with the rating of the project value. **(**ANA) (2019) supports the advancement of the nursing profession and advocacy by championing the nursing profession giving nurses voice to the essential role they play in advancing access to high quality, and affordable care. Advancement in nursing roles and responsibilities entails nurses to educate themselves about the possibilities, receive and give support to each other, be persistent, and have a lasting endurance with each other, patients, and administration (Nitzky, 2018). Educating Nurses/ staff in this institution has improved the knowledge of the staff on fall risk factors, thereby advancing the nursing and policy of the institution through the promotion of positive patient care outcomes. The DNP field experience served/ covered the DNP essentials which are embedded in the other characteristics of the approaches to the project on fall risk factor education. It is notable from the project experiences that all the eight DNP essentials including collaboration, communication, leadership, and research are present in the project learning roles of advancing the practice of nursing.

Leadership: Leadership is an important role of a nurse, and the project process equipped the staff with the ability to pilot and direct their duties within this institution regardless of their qualification, color, ethnicity, and years of experience. Leadership is

the ability to lead with the expectation of a successful outcome. From the knowledge acquired through the project, The staff can conduct, direct, assist, answer questions, and problem-solve for their patients. I responded to organizational and system issues in healthcare by connecting interprofessional relationships between the medical and non - medical staff of the institution. Yes, leadership is presently the watchword, especially in the evaluation, and problem-solving situations concerning ethics, culture, and direct patient care.

Promoting Quality improvement: The staff's knowledge and skills concerning quality improvement made a dramatic upturn because of the project experiences. Laureate ed. (2012) explained that for practice changes, Doctoral prepared nurses should be in the position to provide sound data, level, and strength of evidence, and review the quality of transmission to change through advocacy. These qualify all the areas that the staff developed during the project experience with the outcome of improved quality development. By educating the staff members, they derive knowledge and power of change in the quality of care rendered during the project period to the patients. Competency was developed with the use of computer technology to document fall cases, prepare incident reports, monitor the progress of the project outcome, and calculate the statistical inferences and outcomes to implement quality improvement.

Improving Health Outcome: The project is based on improving what is being done by this institution to prevent falls which were not effective due to the reported increase in the number of falls in the institution per patient day. This changed with an improved health care outcome of a reduction in the number of falls per patient day by

90% and a recorded increase in the knowledge level of the staff on fall risk factors from the result of the posttest evaluation. Salmond and Echevarria (2017) observed that the change in nursing today has drivers such as cost and quality in a constantly changing healthcare system. Therefore, my project experience saw the staff growth in realizing and inculcating health care diversity into patient care. Nurses can advocate for patients by ensuring safety, giving patients a voice, educating, and protecting their rights (Nitzky, 2018).

Informing Health care policy: The project experience informed the staff of the need to involve in policy issues in health, especially at the institutional level.

The project work comprises didactic practical experience embedded with leadership roles, education, policy changes, and good communication through evidence-based practice with positive patient care outcomes. Nurses should be prepared to work together to solve clinical problems, recognizing that some negotiation and compromise may be necessary to improve the quality of health care and its outcome.

Appendix B: Staff Education

The **objective** of the education project is to inform the staff, promote their knowledge of falls in general with a special interest in the risk factors which are blamed to be responsible for the poor clinical performance in preventing fall incidences. The percentage rate of falls recorded in in-patient facilities has a negative stigma and impression, therefore calling for sustenance in positive change in clinical outcome as provided in the project. Evidence-based practices, knowledge-based literature, policies, and procedures were applied in the compilation of education handouts utilized for the staff education program.

The PICO questions focused on the reflections on whether there will be any noticeable change in the knowledge level of fall risk factors, if so, is it possible that such enrichment of knowledge could influence the fall incident rate promoting positive patient care outcomes?

The pre and post-test questions x-rayed the fundamental knowledge pointing at those indicators that define fall risk factors through the patients' plan of care delivering clear message through reflection and application in their evident- based clinical practice across the assisted living facility and to the entire in-patient facilities with patients vulnerable to falls.

Appendix C: Intervention and Critical Questioning with Pre- and post-test Evaluations

The guidelines used focus on best practices as shown below to inspire change and promote positive clinical outcomes.

- Population comprising of the staff of the assisted living facility involved with direct patient care.
- Intervention through Evidence-based education module on falls, fall risk factors, and fall prevention.
- Compares of the baseline knowledge before (pre-test) and improved knowledge post-education (post-Test).
- Outcome indicating increased percentage in test score, knowledge acquired, and quality care to patients with a concurrent reduction in the number of recorded fall incidents per patient day.
- Quality questions are generated.

Test Questions: Each question may have more than one option as the correct answer.

Please circle the letters that correspond to the correct answers.

1. **Which of the following statements is *correct*?**
    a. Falls have multifactorial etiology, so fall prevention programs should comprise multifaceted interventions.
    b. Falls can be prevented from a constant review of medication usage.
    c. So far as patient's toileting needs are met fall risk will be reduced.
    d. The use of antipsychotic medications can increase the risk of falls in older adults.
2. **A multifaceted intervention program should include:**

a. Individually tailored fall prevention strategies.

b. Education to patient/family and health care workers.

c. Environmental safety.

d. Safe patient handling.

3. **Risk factors for falls in the acute hospital include all the following *except*:**

a. Dizziness/vertigo.

b. Previous fall history.

c. Antibiotic usage.

d. Impaired mobility from stroke disease.

4. **Which of the following statements is *true*?**

a. The cause of a fall is often an interaction between the patient's risk, the environment, and patient risk behavior.

b. An increase in hazardous environments increases the risk of falls.

c. The use of a patient identifier (e.g., identification bracelet) helps to highlight to staff those patients at risk for falls.

d. A fall risk assessment should include a review of the history of falls, mobility problems, medications, mental status, continence, and other patient risks.

5. **Patients with impaired mobility should be:**

a. Confined to bed.

b. Encouraged to mobilize with assistance.

c. Assisted with transfers.

d. Referred for an exercise program or prescription of walking aids as appropriate.

6. **The management of the acutely confused patient should include all the following *except*:**

    a. Moving patients away from the nursing station.

    b. Involving family members to sit with the patient.

    c. Orienting patients to the hospital environment.

    d. Reinforcing activity limits to patients and their families.

7. **Which of the following statements is *false*?**

    a. Fall prevention efforts are solely the nurses' responsibility.

    b. A patient who is taking four or more oral medications is at risk of falling.

    c. A patient who is taking psychotropic medication is at higher risk of falling.

    d. Testing or treatment for osteoporosis should be considered in patients who are at high risk for falls and fractures.

8. **In hospital settings, intervention programs should include:**

    a. Staff education on fall precautions.

    b. Provision and maintenance of mobility aids.

    c. Post fall analysis and problem-solving strategy.

    d. Bed alarms for all patients, regardless of risk.

9. **When assessing patients, which of the following statements is *false*?**

    a. All patients should be assessed for fall risk factors at admission, at a change in status, after a fall, and at regular intervals.

b. Medication review should be included in the assessment.

c. All patients should have their activities of daily living and mobility assessed.

d. Environmental assessment is not important in the hospital as it is all standardized.

10. **Risk factors for falls include:**

a. Parkinson's disease.

b. Incontinence.

c. Previous history of falls.

d. Delirium.

11. **Exercise programs for ambulatory older adults should:**

a. Be very aggressive.

b. Be unsupervised.

c. Be ongoing.

d. Include individualized strength and balance training.

12. **Which of the following statements on education in fall prevention is *false*?**

a. Education programs should target primarily health care providers, patients, and caregivers.

b. Education programs for staff should include the importance of fall prevention, risk factors for falls, strategies to reduce falls, and transfer techniques.

c. Instruction on safe mobility, with emphasis on high-risk patients, should be provided to both patients and families.

d. Education should only be given at the start of the fall prevention program.

13. **Which of the following is recommended to improve patient safety?**

a. Locking wheeled furniture when it is stationary.

b. Having nonslip flooring.

c. Placing frequently used items (including call bell, telephone, and remote control) within reach of the patient.

d. Rounding hourly to address patient needs.