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Staff Education to Improve Knowledge Regarding Fall Prevention in Long-Term Care

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Walden University

College of Nursing

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Molly Salmonsén

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Walden University

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Executive Summary: Staff Education Project
Staff Education to Improve Knowledge Regarding Fall Prevention in Long-Term Care

by

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MS, Graceland University, 2020

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Executive Summary Submitted in Partial Fulfillment
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Summary

Falls in residents at long-term care facilities result in increased hospitalizations and healthcare-associated costs, as well as increased morbidity and mortality, which can significantly decrease quality of life. To help prevent falls for long-term care residents, nurses must be knowledgeable regarding fall risk precautions and fall safety as these are the first-line defenses in fall prevention. This doctoral staff education project focused on improving fall-risk reduction and prevention education in nurses of a 125-bed long-term care facility and aimed to answer the practice-focused question: Does implementation of a standardized education program related to fall-risk reduction in the elderly increase nurse's knowledge of effective fall prevention strategies? The ADDIE model (analysis, design, development, implementation, and evaluation) was utilized in the development of this staff education program to identify the learning need and establish goals to ensure training was effective. Twenty-five nurses employed at the long-term care facility were invited to participate in the educational program, which included a pretest, fall education program, and posttest. Ultimately 3 registered nurses (RNs) and 14 licensed practitioner nurses (LPNs) participated in the education. Pre- and posttests were scored manually, and the data were entered into statistical software for analysis. A two-tailed paired samples *t* test was utilized to analyze the quantitative data obtained from the pre- and posttests. Results showed a significant improvement in scores, $t(16) = -5.74, p < .001$, between pre- and posttests after the implementation of the educational program, indicating that the implementation of a staff education program can improve fall prevention knowledge in nurses. A fall education program promotes positive social change by improving safety within the facility, ultimately improving the quality of life for residents of long-term care.

Background

Falls in elderly residents contribute to increased mortality and morbidity as well as a decreased quality of life due to chronic pain, physical disability, and fear (Khalifa, 2019). Finding ways to decrease the risk of falls can improve health outcomes, decrease healthcare-associated costs, and improve the overall quality of life of long-term care residents. Because there is a known knowledge gap between evidence-based fall prevention solutions, a staff education program can help bridge this gap, decreasing the risk of falls (Albasha et al., 2023). The purpose of this project was to educate nursing staff to improve knowledge regarding fall risk prevention and strategies in long-term care. The project question—Does implementation of a standardized education program related to fall-risk reduction in the elderly increase nurse’s knowledge of effective fall prevention strategies?—was utilized to guide this project and determine if a staff education program would improve understanding of fall risk and prevention in long-term care residents, ultimately improving fall risk prevention strategies within the facility and improving the quality of life for this fragile population.

A comprehensive literature search using the Walden Library was utilized during the literature review. The search was limited to full text, peer-reviewed scholarly journals. Various search terms and keywords were used to efficiently locate the most pertinent information regarding the topic. The publication date was changed to only those published in the last 5 years to ensure only the most up-to-date information was included; however, five articles were included based on pertinent information that ranged outside of those dates, resulting in a total of 14 relevant articles. Databases utilized included CINAHL, MEDLINE, Cochrane, PubMed and SAGE Journals. Research showed that

educational programs focusing on fall prevention can improve knowledge and self-efficacy as it relates to fall risk education, showing that a standardized fall-risk education program for staff members improved patient outcomes (Francis-Coad et al., 2022).

Falls are the second leading cause of death globally, and the fall rate in long-term care residents is three times more likely than those in community settings (Albasha et al., 2023). There was noted to be a positive correlation between educational programs and improved knowledge regarding fall prevention as well as a fall-risk reduction in patients (Cooper, 2017; Feinsod et al., 2005; Khalifa, 2019; Lee et al., 2013; Leverenz & Lape, 2018; Ojo & Thiamwong, 2022; Park, 2021; Shaw, Kiegaldie, & Morris, 2020). Other studies showed that nursing knowledge improved significantly after fall risk education was provided, however results did not reveal a statistically significant fall rate reduction (Schoberer et al., 2022). A systematic review by Cameron et al. (2018) showed several studies that did not result in any statistically significant findings after educational interventions. Another study by Francis-Coad et al. (2022) showed that prioritization of fall prevention improved fall prevention within five aged care homes, and that improving evaluations for healthcare workers' fall prevention knowledge can improve their awareness in fall prevention (Shaw, Kiegaldi, & Farlie, 2020).

Of the 14 total studies, there were found to be two Level 1 studies, five articles were rated at Level II and seven were rated at Level III. Eleven of the 14 had a quality rating of high, and three were found to have a low-quality rating. Overall, the evidence was felt to be good and consistent, reiterating the likelihood of improved educational outcomes with a standardized educational program.

Conceptual Framework

The ADDIE model (White, et al., 2021) was utilized in the development of this staff education program. During the analysis stage, communication with the key stakeholders is essential. The analysis phase is utilized to discuss knowledge gaps and ways to improve the current system while also taking into consideration appropriate learning styles and overall goals of the project (White et al., 2021).

Instructional material is designed during the next phase. An essential part of this phase is ensuring that the information included in the final plan is tailored to the organization's and participants' needs as it relates to knowledge limitations. Information regarding knowledge gaps that were noted during the analysis phase can be utilized in this stage (White et al., 2021). Creation of the educational material is completed during the development phase, ensuring that the included material supports the project and the learning outcomes (White et al., 2021).

During the implementation phase, educational material is provided to the participants. This can be accomplished in different ways, including face-to-face, online, blended instruction, self-paced learning, or with printed materials. The goal is to provide an experience that is learner-centered and encourages engagement with the participants (White et al., 2021). The evaluation stage is utilized to ascertain whether the learners showed any knowledge improvement after the implementation process, which helps to determine the effectiveness of the program as well as the readiness of the learner as it relates to the change in practice (White et al., 2021).

Staff Education Project Development

Development of Program Materials

As noted, I completed a comprehensive literature search using the Walden Library. The search was limited to full text, peer-reviewed scholarly journals and led to a total of 14 relevant articles. Research showed that educational programs focusing on fall prevention can improve knowledge and self-efficacy as it relates to fall risk education, showing that a standardized fall-risk education program for staff members improved patient outcomes (Francis-Coad et al., 2022). After the extensive research regarding the implementation of fall risk reduction education for health care professionals as well as a review of the current fall risk practices and programs with the facility, I determined that the Fall Knowledge Test (Appendix A) developed by The Agency for Healthcare Research and Quality (AHRQ, 2013) was both applicable and appropriate for use in this long-term care facility and as such, was utilized for the pre/post-test. Information for the education program materials was comprised of information from the AHRQ as well as resources from the Centers for Medicare & Medicaid Services (2007), which are both reputable organizations whose goal is to oversee the quality of healthcare in institutions. Lastly, the organization's fall risk education material was included to serve as a reminder for staff and supplement their learning. Utilization of this information was included as it aligns with current practice guidelines from credible healthcare institutions, ensuring the validity of current evidence-based practice.

Participants and Procedures

Twenty-five nurses (five RNs and 20 LPNs) currently employed at this LTC facility were invited to participate in the educational program. Walden University's

ethical policies were followed by obtaining approval from both Walden faculty as well as facility staff prior to beginning the project. Meetings were held with the team to discuss the project plan prior to implementation and to ensure that the project was completed ethically and according to the facility's policies and procedures. Invites were sent via email from the director of nursing (DON) to all LPNS and RNs in the facility. The fall education program was explained in detail and approved by the team while ensuring appropriate policies and procedures were followed as indicated by the facility's Quality Improvement Teams' initiatives and guidance. The pre- and posttest as well as the educational PowerPoint were reviewed by the team, and after their approval, the pretest was given. Those who completed both the pretest, participated in utilizing the educational material, and then completed the posttest comprised three RNs and 14 LPNs.

Staff were given 7 days to complete the pretest, a 13-question fall knowledge test developed by the AHRQ (2013). The test included multiple-choice and true/false questions, as well as select all that apply, with one point possible for each correct answer. The tests were printed and handed out to participants, then collected and scored manually by myself with the answer key provided by AHRQ. Staff were informed to not place their names on the pre- or posttests to keep the information anonymous. Once all pretests were completed, a copy of the educational PowerPoint was administered via printout to each of those who had completed the pretest. The participants were then given 2 weeks to review the educational information at their leisure and ask any questions, followed by a posttest, which contained the same questions as the pretest.

Collection of Evidence

After completion of the pre- and posttests, the tests were submitted to the DON

who stored them in her office until all tests were completed and collected. The tests were then given to me for analysis. The subjects had been instructed to not provide any identifying information on the tests such as their name or the unit they worked on.

Analysis of Evidence

Tests were scored manually utilizing the answer key provided by AHRQ (2013). The pre- and posttest data were entered into Intellectus Statistics software for analyzing. Data were analyzed to determine if there was an improvement in fall prevention knowledge pre- and postintervention, with the goal of answering the practice-focused question. A two-tailed paired samples t test was utilized to analyze the quantitative data obtained from the pre- and posttests, with a p value of 0.05 or less considered statistically significant.

Results

The results between the pre- and posttest showed a significant improvement in scores after implementation of the educational program, shown in Table 1. A two-tailed paired samples t test was conducted to examine whether the mean difference of the pretest and posttest was significantly different from zero. The paired t test is beneficial for comparing the pre- and postintervention outcomes (Complete Dissertation, 2024). The result of the two-tailed paired samples t test was significant based on an alpha value of .05, $t(16) = -5.74$, $p < .001$, indicating the null hypothesis can be rejected. This finding indicates the difference in the mean of the pretest and the posttest was significantly different from zero and the mean of the pretest was significantly lower than the mean of the posttest. The results of the pre- and posttests are presented in Table 2. A bar plot of the mean scores of the pre- and post-tests is presented in Figure 1.

Table 1*Data from Pretest and Posttest*

Question	Pretest	Posttest
1. Multiple choice regarding fall knowledge	6 (35.3%) correct 11 (64.7%) incorrect	14 (82.3%) correct 3 (17.6%) incorrect
2. Multifaceted intervention program	9 (52.9%) correct 8 (52.9%) incorrect	17 (100%) correct
3. Risk factors for falls	14 (82.3%) correct 3 (17.64%) incorrect	16 (94.11% correct) 1 (5.8%) incorrect
4. Fall risk/assessment	3 (17.6%) correct 14 (82.3%) incorrect	13 (76.47%) correct 4 (23.52%) incorrect
5. Impaired mobility	7 (41.17%) correct 10 (58.82%) incorrect	17 (100%) correct
6. Management of confusion	11 (64.7%) correct 6 (35.29%) incorrect	15 (88.23%) correct 2 (11.76%) incorrect
7. True/false regarding fall risk/prevention	9 (52.9%) correct 8 (47.05%) incorrect	11 (64.7%) correct 6 (41.17%) incorrect
8. Intervention programs	7 (41.17%) correct 10 (58.82%) incorrect	13 (76.47%) correct 4(23.52%) incorrect
9. Fall assessment	13 (76.47%) correct 4 (23.52%) incorrect	17 (100%) correct
10. Risk factors for falls	5 (29.41%) correct 12 (70.58%) incorrect	15 (88.23%) correct 2 (11.76%) incorrect
11. Exercise programs	6 (35.29%) correct 11 (64.70%) incorrect	17 (100%) correct
12. True/false regarding fall education	7 (41.17%) correct 10 (58.82%) incorrect	16 (94.11%) correct 1 (5.8%) incorrect
13. Improving patient safety	6 (35.29%) correct 11 (64.70%) incorrect	14 (82.3%) correct 3 (17.6%) incorrect

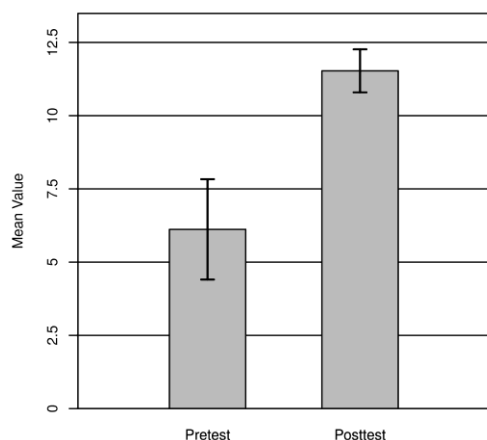
Table 2*Two-Tailed Paired Samples T Test for the Difference Between Pretest and Posttest*

Pretest		Posttest		<i>t</i>	<i>p</i>	<i>a</i>
<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
6.12	3.60	11.53	1.55	-5.74	< .001	1.39

Note. *N* = 17. Degrees of freedom for the *t* statistic = 16. *a* represents Cohen's *d*

Figure 1

Means of the Pretest and Posttest with 95.00% CI Error Bars



Post-implementation of a fall education program for nurses, it was apparent that there was a statistically significant, positive change in the scores from the pretest to the posttest. This shows that a fall risk education program can be utilized to improve staff knowledge regarding fall risk and prevention in long-term care effectively. Results from this project can be applied in other long-term care facilities in the development of a fall-risk education program that is low-cost and efficient in fall prevention management.

Limitations

A limitation of this analysis was that the posttest was administered directly after participants were given education materials to review, which could have skewed the results positively. Another limitation was that the pre- and posttests were self-administered, so it was not possible to confirm the truthfulness of the answers given, or whether staff worked together, which can lead to bias. Self-teaching may also have added to the limitations of the study based on learning styles and some participants may not

have prioritized the learning material which could skew results. Lastly, the busy schedules and lack of time on a nursing unit could also be a limitation as optional learning material could not be prioritized during day-to-day tasks.

Conclusion

The fall-risk education and prevention program was shown to have a positive effect on the knowledge of nurses within the facility as evidenced by a statistically significant improvement in pre- and posttest scores after completion of the educational program. Continuing with a robust fall-risk prevention program can help decrease the risk of falls, ultimately decreasing health-care associated injuries, hospital visits, and overall cost to both the patient and the facility. Ultimately, the facility will continue to utilize the fall education material for new employees and during their yearly competencies, and the quality improvement team will continue to monitor falls, circumstances that led up to the fall, and ways to decrease the risk of falling throughout the facility.

Further recommendations to be considered include identifying fall risk factors in each unit and implementing education tailored to the specific needs of the unit. With healthcare, one size does not always fit all, and programs may need to be updated and changed to provide the most benefit for the organization based on individual needs. Fall prevention is a fundamental aspect of patient safety and improved patient outcomes, and nursing education is at the forefront of fall prevention in long-term care.

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Appendix A: Fall Prevention Pre-test/Post-test

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. Regular review of medication can help to prevent patient falls.
 - c. The risk of falling will be lessened when a patient's toileting needs are met.
 - d. The use of antipsychotic medications is associated with an increased 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 of 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 patient's risk, the environment, and patient risk behavior.
 - b. 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 review of 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 exercise program or prescription of walking aids as appropriate.

6. **The management of the acutely confused patient should include all of 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 for falling.
 - c. A patient who is taking psychotropic medication is at higher risk for 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.

Note. From “Preventing Falls in Hospitals, Tool 2E: Fall Knowledge Test,” by Agency for Healthcare Research and Quality, 2013 (<https://www.ahrq.gov/patient-safety/settings/hospital/fall-prevention/toolkit/fall-knowledge-test.html>). Available online.

Appendix B: Fall Education PowerPoint

FALL PREVENTION

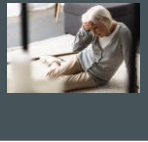


OBJECTIVES

- Definition of falls
- Practice Guidelines
- Fall Risk Factors
- Fall Prevention/Reduction Interventions
- Pre-/Post-test



FALLS DEFINED



- CMS defines falls as "unintentionally coming to rest on the ground, floor, or onto the next lower surface, but not as a result of an overwhelming external force, such as a resident pushing another resident, whether the event was witnessed or unwitnessed."
- Intercepted and/or assisted falls still equal falls

(CMS, 2007)

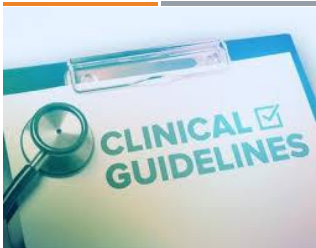
FALL PREVENTION

- Falls are inevitable in our patient population, but eliminating needless falls is crucial, as is limiting injuries from falls
- Fall prevention improves patient's safety while in the facility and at discharge
- Fall prevention strategies help staff review preventative interventions and update care plans appropriately
- Care plans are individualized to help each resident attain their highest level of function while minimizing risk of falls
- It is crucial to prevent falls and/or minimize injury from a fall
- Fall prevention assessments help determine preventative interventions
- Multifaceted fall risk reduction interventions are necessary, as falls have a multifactorial etiology
 - Individually-tailored fall prevention strategies
 - Patient/family/health care worker education
 - Environmental safety
 - Safe patient handling

(AHRQ, 2014)

PRACTICE GUIDELINES

- All new residents are considered a fall risk until reviewed by the interdisciplinary team
- Medications should be monitored that could contribute to fall risk
- Referral to PT/OT as indicated
- Reassessment quarterly, annually, or with any change in status



(Principle LTC, 2023)

FALL RISK FACTORS

- Living spaces: Clutter, raised thresholds, poor lighting
- Dizziness/vertigo
- Hard to reach personal items
- Loose handrails and toilet seats
- Unsafe footwear
- Broken locks on wheels/wheelchairs
- Medical comorbidities that impair mobility: Dementia, Parkinson's, hypotension, CVA, incontinence, etc.
- Unsafe transfer/walking without assistance
- Previous fall history
- Health decline
- Hard to manage clothing
- Incorrect assistive device
- Use of medications such as diuretics, benzodiazepines, antipsychotics
- Visual/hearing impairments


(Principle LTC, 2023)

FALL EDUCATION

- The cause of a fall is often an interaction between patient's risk, the environment, and patient risk behavior
- Increase in hazardous environments increases the risk of falls
- The use of a patient identifier, such as fall risk bracelets or signs in the room, helps to highlight to staff those patients at risk for falls
- Atfall risk assessment should include review of history of falls, mobility problems, medications, mental status, continence, and other patient risks
- All residents should be assessed for fall risk factors on admission, if there is a change in status, after a fall, and at regular intervals and including ADLs and mobility status
- Medication reviews should be included in these assessments


PATIENT MOBILITY

- Patients with impaired mobility should:
 - Always be encouraged to ambulate/mobilize with assistance
 - Always be assisted with transfers to provide safety and help prevent falls
 - Referred to PT/OT or other exercise programs and provided with the correct mobility aids such as a walker or cane



CONFUSED PATIENTS

- Keep confused patients close to the nurse's station for close monitoring
- Involve family's in plan of care and encourage them to visit often to help orient patient to the environment
- Educate patient and families on activity limitations and the need for safe transfers and mobility with staff assistance



FALL PREVENTION EDUCATION

01

Fall prevention is NOT entirely the nurse's responsibility

02

A patient who is taking four or more oral medications is at an increased fall risk

03

A patient who is on psychotropic medications has an increased fall risk

04


Testing/treatment for osteoporosis should be considered for those who are at increased risk of falling

FALL PREVENTION/REDUCTION TECHNIQUES

- Resident orientation to their room/surroundings
- Education regarding call light
- All personal items within reach
- Environmental modifications as indicated
- Non-skid footwear
- Hearing/vision devices on the person
- Individually tailored fall prevention strategies
- Regular medication reviews
- Assistance with meeting toileting needs
- Decreasing use of antipsychotic medications, as these medications can increase falls
- Assistive devices within reach
- PT/OT referral

FALL PREVENTION INTERVENTION PROGRAMS

- Intervention programs should include
 - Staff education
 - Provision and maintenance of mobility aids
 - Post-fall analysis and problem-solving strategies
- Bed alarms are NOT utilized in the LTC setting





FALL PREVENTION EDUCATION PROGRAMS

- Education programs should target health care providers, patients, and their caregivers
 - Include information on safe mobility and those at high-risk for falls
- Staff education programs should include
 - Importance of all prevention, risk factors for falls, fall reduction strategies, and safe transfer techniques

EXERCISE PROGRAMS FOR THE ELDERLY

- Exercise programs for the elderly should be ongoing and should include individualized strength and balance training





IMPROVING PATIENT SAFETY

Lock wheeled furniture when it is stationary

Non-slip flooring

Place frequently used items such as the call light, phone, remote, and glasses within reach

Frequent rounding

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