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Compliance in Fall Prevention in Dementia vs Non-Dementia Nursing Home Units

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Graduation Year: 2020

Abstract

The student nurse researcher performed a research study to determine if there was a difference in the compliance of fall prevention interventions between dementia and non-dementia nursing home units. The student nurse researcher hypothesized the dementia nursing home units would be more compliant with fall prevention interventions than the non-dementia nursing home units. In contrast, the null hypothesis stated there would be no statistically significant difference in the compliance of fall prevention interventions between the dementia and the non-dementia nursing home units. The Fall Prevention Intervention Checklist was used to assess environmental fall hazards in occupied resident rooms. Of the 30 rooms observed, 14 were dementia and 16 were non-dementia. Upon evaluation, the statistical data analysis revealed there was a statistically significant difference in compliance of the fall prevention interventions. Therefore, the student nurse researcher rejected the null hypothesis. The research performed by the student nurse researcher implied that education on fall prevention interventions was one of the most important factors in fall prevention. For future research studies, the student nurse recommended developing a more thorough checklist and including in-depth factors in the checklist such as level of consciousness, polypharmacy, and diagnoses of the residents.

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Chapter I

Origin of the Problem

After reviewing current literature, the student nurse determined there was a substantial lack of knowledge regarding falls in dementia vs non-dementia nursing home units. Falls were the leading cause of non-fatal injuries and trauma-related hospitalizations in the United States and have been linked directly with the quality of nursing care (Hicks, 2015). Complications associated with falls among patients can result in death, disability, increased hospital length of stay, placement in extended care facilities, psychological distress, and litigation. The cost of falls in the United States may be more than $40 billion by 2020 (Twibell, Siela, Sproat & Coers, 2015).

Current literature suggested fall prevention was effective when the main focus was placed on risk factors such as age, gender, medications, and treatments. There were also factors related to the nursing homes such as the maintenance of and types of equipment, teamwork, and communication between nursing professionals in the nursing home. The major risk factor considered was the failure to identify high risk patients, which contributed to the lack of effective measures for fall prevention. According to Twibell, Siela, Sproat and Coers (2015), it was proven that falls were highly reduced when modifiable risk factors were addressed; examples of said risk factors included longer hospital stays, history of falls, Morse Fall Scale score, visual acuity, balance, urinary incontinence, the administration of sedatives, anticonvulsants, benzodiazepines, etc. Additionally, the research noted how nurses should routinely assess patients' risk for falls and educate them on actions to prevent falls. Unfortunately, a gap remained between the knowledge about prevention and the implementation of those effective measures. Therefore, falls continued to be a serious safety threat in nursing home residents (Twibell et al., 2015).

Dementia was a clinical syndrome that comprised multiple diseases characterized by progressive deterioration in cognitive ability and a gradual, steady decline in memory, language, problem solving, judgement, and decision making (Potter, Perry, Stockert, & Hall, 2017). People with dementia were at high risk of falling with at least a two-fold increased risk compared with no cognitive deficits. People with dementia also had a higher risk of falls, compared to people who are cognitively intact. Up to a third of emergency hospital admissions occurred in an older person with dementia, and over half of these were associated with a fall (Harwood et al., 2018).

Clinical Observations

Implementing patient safety was an important aspect in the process of patient care. The student nurse recognized previous patients in the clinical units who required longer hospitalizations due to falls that were preventable. The student nurse noted that the majority of residents who have fallen in the nursing home units did not properly follow fall prevention interventions. These interventions included ambulating alone, lack of skid-proof socks or shoes, and ambulating in a room with clutter (Grillo, Firth & Hatchel, 2019). Patients also do not always utilize their call button, causing them to attempt to get out of their beds without assistance. It was up to the healthcare professionals to correct these practices and educate their patients on fall prevention.

Several factors put patients at risk for falls, including impaired mobility, level of consciousness, age, and medications. For example, patients in nursing homes were at risk for falls due to existing health conditions. It was also important to take into consideration the residents' history of falls and need for assistive devices. The healthcare professionals also needed to take into consideration eliminating additional factors in the nursing home units such as removing excess

clutter, cleaning spills on the floor, putting the bed in the lowest position, keeping two side rails up, putting non-skid socks on the patients, and ensuring the call light was within reach. However, bearing witness to the aforementioned violations of fall precautions precipitated the interest of the student nurse to further research the effectiveness of fall prevention intervention.

Nursing Theory

        The basic components of Martha Rogers' theory, "Science of Unitary Human Beings" indicated the patient and his or her environment were in continuous contact with each other. It was referred to as integrality, as there was an invisible bond between the patient and environment. This concept stated that a patient's environment was an essential factor when regarding the recovery or outcome of the patient's health. According to Rogers, the role of the nurse was to harmonize the environment and the patient's aura in order to achieve an efficient health status. In regard to illness and health, Rogers believed these two important components were essential for the patient's health potential. For example, this included aiding the patient in adjusting to his or her new normal (Fawcett, 2016).

        Martha Rogers' theory, "Science of Unitary Human Beings" was an applicable theory for fall precautions in dementia and non-dementia nursing home rooms because it correlated the environment with the success of the patients' health. An environment in the dementia and non-dementia nursing home environment entailed safety precautions such as bed locked and in lowest position, call light and side table within reach, two side rails raised, and non-skid socks on the patients. Identifying these key factors of the patients' environment allowed the student nurse to implement a safe and patient-centered care setting. The importance of integrating the patients' health with the environment helped protect patients from further injury and reduced stays (Fawcett, 2016).

Significance or importance of the problem

        The significance of the research was to determine nursing compliance with fall prevention interventions. The National Database of Nursing Quality Indicators defined a fall as "an unplanned descent to the floor with or without injury to the patient and occurs on an eligible reporting nursing unit" (Nuckols et al, 2017, p.573). Falls were qualified as a sentinel event under hospital policy. A sentinel event was an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof (The Joint Commission, 2015).

        The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) had fall prevention protocols in place to prevent falls from happening, and if a fall were to occur then the nursing home would be liable and at fault. Falls led to extended hospital stays and prolonged patient healing. According to JCAHO, falls cost the hospital an average of $14,000 per fall and add 6.3 days to the patient's hospital stay (Grillo et al., 2019).

        The student nurse researched nursing implementation of fall prevention interventions. In a study conducted at two hospitals in California, the researchers observed nurses rounding before and after education of fall prevention interventions. The results were that the nurses at both hospitals spent less time on fall assessments with activities after an intervention than before (Nuckols et al, 2017). Articles such as this promoted awareness and enhanced compliance with implementation of fall prevention interventions. The importance of this research was to recognize fall prevention interventions at the nursing home along with compliance of those interventions throughout dementia and non-dementia nursing home units.

Statements

       Problem Statement. Is there a difference in the compliance of fall prevention interventions in dementia and non-dementia nursing home units?

       Purpose Statement. The purpose of the study is to determine if there is a difference in the compliance of fall prevention interventions in dementia and non-dementia nursing home units.

       Null Hypothesis. There will be no statistically significant difference in the compliance of fall prevention interventions in dementia and non-dementia nursing home units.

       Research Hypothesis. Dementia nursing home units will be more compliant of fall prevention interventions than non-dementia nursing home units.

Definition of Terms

For the purpose of this study, the following terms were defined:

       Compliance. The action or fact of obeying or applying specific fall prevention interventions.

       Fall prevention interventions. A set of guidelines that establish interventions and risks for specific health care problems or conditions in relation to falls.

       Nursing Home. A long-term care facility to care for residents who can no longer live at home.

       Dementia Nursing Home Room. A room found in the nursing home for residents suffering from dementia.

       Non-Dementia Nursing Home Room. A room in the nursing home for residents not suffering from dementia.

       Fall. A sudden, unintentional descent that results in a patient coming to rest on an unexpected surface, such as hospital staff, a wall, or another object.

Assumptions

For the purpose of the study, the following assumptions were made:

1. All nursing homes have fall prevention interventions.
2. Employees of the nursing homes are educated on their fall prevention interventions.
3. Fall prevention interventions are effective in preventing falls.
4. The "Fall Prevention Intervention Checklist" properly measures the implementations to prevent falls.
5. The researcher correctly completed the observation tool.
6. The researcher made objective and consistent observations.

Chapter II

Review of Literature

Through the review of literature and associated fall prevention in dementia and non-dementia nursing home units, the student researcher discovered four pertinent themes: the knowledge of fall prevention, fall prevention interventions, impact of wearable monitoring, and falls in dementia patients. There were two articles related to the knowledge of fall prevention, four articles related to the fall prevention interventions, one article related to the impact of wearable monitoring, and one related to falls in dementia patients.

Knowledge of Fall Prevention

The student researcher analyzed two articles regarding the knowledge of fall prevention including Tzeng and Yin (2015) and Twibell et al. (2015). Tzeng and Yin (2015) focused on the perception of the most effective interventions to prevent fall injuries in adult patients by the registered nursing (RN) staff in specific acute hospital rooms. Tzeng and Yin compared the rankings of the perceived top ten effective interventions versus the actual implementation of fall prevention interventions by the RN staff. A cross-sectional survey organized across five nonprofit healthcare systems within the Midwest of the United States from 2011 to 2012 was utilized. Various units were evaluated, including 68 adult critical care units, step-down units, and noncritical inpatient acute care units. Each healthcare system's participation was approved by the hospital review board.

The sample pool for the cross-sectional survey included RN staff who met the criteria set by Tzeng and Yin (2015). The conditions included the following guidelines: 21 years old or older, have an RN license in the state of Michigan, work an average of 20 hours per week, be employed on the studied unit, and provide direct patient care. Travel and contract nurses were exempt. All participation was voluntary and anonymous, and personal information was not recorded. Tzeng and Yin (2015) identified 2,170 potential participants who met the criteria, but only 560 nurses completed the survey. After a detailed analysis of the survey responses, Tzeng and Yin concluded that RN perceptions about highly utilized fall prevention interventions differed from actually effective fall prevention interventions. Further research would be required to bridge the gap between nursing perceptions for fall prevention and genuine fall precautions for acute hospital rooms (Tzeng & Yin, 2015).

Additionally, the descriptive survey conducted by Twibell et al. (2015) focused on hospitalized adults' perceptions related to the risk of falling, fear of falling, expectations of the outcomes of falling, and the intention to engage in behaviors to prevent falls. The sample size used by the researchers was 158 patients. The patients were included in the convenience sample if they were an adult fall risk, nonpregnant, English speaking, cognitively alert and oriented, and in stable physiological condition. The excluded criteria included patients who suffered from dementia or delirium and those hospitalized in the intensive care unit, extended care unit, obstetric unit, or emergency department.

The participants were given a survey that specifically included four Likert scales and three single items. The three single items included were the participants' perceived likelihood of falling while hospitalized, the likelihood of injury if they fell while hospitalized, and the fear of falling. The findings of Twibell et al. (2015) reflected that the participants with a low intention to engage in fall prevention interventions reported a low fear of falling, a low perceived likelihood of adverse outcomes from falling, fewer consequences of falling, and a high confidence in safely performing

risky behaviors. The findings also stated the intention to engage did not necessarily correlate to the actual engagement in fall-prevention plans. Acutely ill patients reported an intention to ask for help. If help were not quickly available, patients who were confident, unafraid, and perceived little likelihood of falling would override their intentions and performed high-risk behaviors. The findings of Twibell et al. (2015) also suggested that the fear of falling was the key factor for nurses to design fall prevention plans.

Fall Prevention Interventions

The student researcher reviewed the literature of four different articles related to fall prevention interventions. The following articles reviewed the utilization of mobility cards, the implementation of hourly rounding, and enforcement of evidence-based fall prevention programs.

First, Lipsett and White (2019) evaluated an orthopedic unit to determine the level of the nurses' comfortability regarding the communication of ambulatory assistance required by patients. A quantitative approach was utilized through the implementation of a pre-survey and post-survey answered by the registered nursing (RN) staff of the orthopedic unit. The pre-implementation survey was an electronic poll containing six questions, and all RNs were invited to complete the survey. The questions asked how comfortable RNs felt assisting patients not assigned to them, how often fall prevention tools were utilized, and whether or not the RNs trusted information posted by other RNs about the activity level of patients. After reviewing the results, a group of key stakeholders from the orthopedic unit decided to develop and implement the use of mobility cards.

The mobility cards were meant to further reflect all possible patient mobility scenarios that may occur on the orthopedic unit. All nurses and ancillary staff were educated about the use of mobility cards. A post-implementation survey with the same six questions, as well as an additional question regarding the implementation of the mobility cards, was compared against the results of the pre-implementation. The results showed that there was a 26 percent increase in RN responses when asked, "How well do you know the activity level of patients assigned to other RNs?" There was also a 16 percent increase in RN responses regarding the question, "How comfortable do you feel assisting other nurses' patients out of bed?" The additional question of, "Do you feel the ambulation level cards increase your knowledge of patients' activity levels?" showed that 70 percent of the RNs answered yes (Lipsett & White, 2019, p. 38). Fall rates between January 2017 and March 2017 on the orthopedic unit dropped from 3.16 falls per 1,000 patient days to 1.64 falls per 1,000 patient days. Lipsett and White (2019) strongly suggested that the utilization of mobility cards did improve RNs comfortability regarding fall prevention.

In addition to the use of mobility cards, purposeful hourly rounds were implemented in an acute medical-surgical hospital unit. Grillo et al. (2019) studied the effectiveness of purposeful hourly rounds in conjunction with pre-existing fall prevention protocols to further prevent falls in the acute hospital setting. The purpose was to decide if purposeful hourly rounds were effective in preventing falls in the hospital setting. The sample was a 112-bed medical-surgical unit located in the southwestern United States. Of this sample, a 26-bed section was utilized. The patients admitted to this area of the unit were considered high risk for falls due to mental illness, dementia, delirium, or an inability to care for themselves. The objective was that through the implementation of purposeful hourly rounds, patient falls would decrease by 50 percent (Grillo et al., 2019).

The current fall prevention protocol of this unit utilized fall risk wristbands, color coded non-skid socks, and bed or chair alarms. However, it was noticed that patients would continue to get up unassisted. Training for staff that would implement purposeful rounds that would occur

every hour during the day and every two hours at night. During these rounds, the facility's 5 Ps would be addressed: pain, potty, position, possessions, and plan of care. Validation of these rounds occurred during nurse leader rounds. During these rounds, the nurse leader asked patients if they knew their nurse, their plan of care, and if they had been visited at least every hour by nursing staff. This unit was also under camera observation to further validate the results. Previous to this implementation of purposeful rounds, the unit had a fall rate of 5.31 per 1,000 patient days. The results found that with continuation of purposeful hourly rounds, the fall rates continued to decrease to rates of 1.45 per 1,000 patient days. These results were below the national average of 3.92 falls per 1,000 patient days. It was also found that Press Ganey scores for nurse courtesy increased as well. Overall, it was concluded that purposeful hourly rounds in conjunction with pre-existing fall prevention protocols were successful in decreasing falls in a medical-surgical acute hospital unit (Grillo et al., 2019).

The focus of the third research article by Nuckols et al. (2017), was to assess the effectiveness of hourly rounding by the RNs at both the University of California at Los Angeles (UCLA) Medical Center in Santa Monica and the University of California at San Francisco (UCSF) Medical Center Parnassus campus in San Francisco in correlation with the net cost of fall prevention intervention. UCLA Medical Center had 266 beds in its hospital and UCSF had 700 beds in its hospital. Nuckols et al. (2017) hypothesized that the implementation of hourly rounding and critical thinking about fall risk would increase nurses' knowledge and decrease the annual number of falls per hospital.

Nuckols et al. (2017) did not add another intervention for the hospitals to use but observed and implemented each hospital's own fall prevention intervention. The design and methods of this article correlated with each other. The design of the article used for the annual costs of falls was a decision-analytical model, while a quantitative design was used for the collection of data. The intervention design of the article used was the "4Ps method" of rounding. The 4Ps consisted of pain, personal needs, position of patient, and placement of items within the patient's reach. The 5Ps included preventing falls.   The methods used was the Revised Standards for Quality Improvement Reporting Excellence 2.0 and the Consolidated Health Economic Evaluation Reporting Standards. Nuckols et al. (2017) also used educational videos to further the importance of critical thinking on fall prevention services.

The surveys evaluated the adherence of the nurses to the fall prevention intervention at each hospital. The surveys included the use of rounding methods, the name of the method, frequency of rounding, delegation of rounding, age, gender, nursing experience, the unit, number of patients and 24 items from the MISSCARE. Observation of the nurses took place at each hospital from 7 a.m. to 11 a.m. by recent nursing school graduates. Nuckols et al. (2017) assessed the evaluation of costs of falls for each hospital annually. The Quality-Cost Framework was used to calculate the cost of falls.

Nuckols et al. (2017) concluded that effectiveness of the assessed fall rate per 1000 patients declined at both hospitals. Adherence resulted that in Santa Monica, self-reported use of hourly rounding remained stable while the use of the five Ps increased. In San Francisco, the use of self-reported rounding increased and the use of the five Ps increased. The observation of time spent on fall-related events also declined at both hospitals. The annual cost of fall related injuries declined at both hospitals and resulted in a net savings of thousands of dollars.

As aforementioned, falls have continued to be the leading cause of injuries in hospitals, to be the most expensive adverse event, and to be the top concern of patient safety. Trepanier and Hilsenbeck (2014) studied the impact of a standardized fall prevention program across 50 acute

care hospitals in 11 states. A sample size of adult patients in 50 acute care hospitals was utilized. The purpose was to implement a standardized fall prevention program for adult patients. Multiple interventions were offered targeting patient-specific needs with an expected outcome of decreasing falls with injuries. A correlational design was utilized. The implementation of a standardized fall prevention program influenced the reduction of falls and fall related injuries. These variables had a negative relationship because as the use of a standardized fall prevention program was implemented, the number of falls and fall related injuries decreased (Trepanier & Hilsenbeck, 2014).

The methodology the researchers used to ensure the standardized fall prevention program was implemented through national webinars, conference calls, and individual site visits. The chief nursing officer of each hospital was identified as the sole individual to ensure the standardized fall prevention program was communicated to all caregivers and was also the liaison to Trepanier and Hilsenbeck and the fall prevention team. The standardized fall prevention program was implemented over a year. The results of the standardized fall prevention program identified a decrease in falls by 58.3 percent after the first year. Next, a 41 percent decrease in fall related injuries were identified after the first year. Trepanier and Hilsenbeck (2014) predicted a 33.3 percent decrease in falls and fall related injuries over the next two years.

Between the four articles related to intervention of fall prevention, two of the articles interpreted the 5P method differently using various words to describe the same concept. One of the articles utilized costs as a result of hourly rounding, which concluded a decline in both fall related injuries and the annual fall cost of hospitals. All of the other articles concluded a decline in falls in patients and increase in implementation of fall prevention interventions.

Impact of Monitoring

The student researcher reviewed one article related to the impact of monitoring in acute care rooms. The article reviewed activity, heart rate variability, and falls among patients. Grewal et al. (2017) conducted a three-month study with 35 patients from an adult hematology/oncology acute care at a medical center. Grewal et al. (2017) had two purposes. The first was to assess the viability of wearable chest sensors in acute care rooms to monitor physiological measures and physical activity. The physiological measures included heart rate, heart rate variability, and respiratory rate. The second purpose was to identify fall risks with information collected from the sensor (Grewal, et al. 2017).

Inclusion criteria, assessment tools, monitoring and evaluation of a chest monitor were used by Grewal et al. (2017). The main assessment tool utilized was the Hendrich II fall risk. This tool was updated daily but only the first result was used. Others included Mini-Mental State Examination, Falls Efficacy Scale-International, and Short-Form Health Survey. The sensor used was the Zephyr™ BioPatch™. Electrocardiogram electrodes were attached to the patient's chest. Respiratory rate, body temperature, and heart rate variability were monitored. The biological criteria were collected during the patient's entire stay. The sensor also monitored sleep posture and quality, activity level and posture, and transitions of posture (Grewal et al. 2017).

The inclusion criteria included patients hospitalized longer than 24 hours on the hematology/oncology unit, the attachment of the monitor, and the patient's ability to sign a consent form. Results were available for 33 out of the 35 patients. Electrocardiogram signals were inadequate for two other patients. Of the 31 patients who had sufficient data, age had a positive correlation with fall risk and no other characteristics (Grewal et al. 2017).

Falls in Dementia Patients

The student researcher reviewed one article about fall and hospitalizations among persons with dementia and associated caregiver emotional difficulties by Leggett, Polenick, Maust, and Kales (2018). Leggett et al. (2018) examined falls and hospitalizations among persons with dementia (PWDs) as predictors of caregivers' reported care-related emotional difficulty, in addition to care-related stressors. Leggett et al. utilized cross-sectional telephone survey. 652 informal caregivers for PWDs were utilized for this research. Leggett et al. utilized a multinomial logistic regression and examined falls (last month) and hospitalizations (prior year) experienced by PWDs as predictors of caregivers' care-related emotional difficulty, accounting for demographic characteristics and primary and secondary caregiving stressors. Leggett et al. found that over 20% of caregivers reported high levels of care-related emotional difficulty. The PWD's prior month of falls was significantly associated with greater care-related emotional difficulty; the PWD's hospitalizations were not associated with care-related emotional difficulty (Leggett Polenick, Maust, & Kales, 2018).

Summary of Literature

After reviewing the literature, the student researcher identified there to be no conflicting information between the selected articles. Seven articles used appropriate research instruments with established reliability and validity to gather data on fall prevention in acute and non-acute hospital rooms, and one article did not use appropriate research instruments. Tzeng and Yin (2015) and Twibell et al. (2015) showed similar findings regarding the knowledge of fall prevention among nursing staff and patients. Next, Lipsett and White (2019), Grillo et al. (2019), Nuckols et al. (2017), and Trepanier and Hilsenbeck (2014) found similar findings regarding the implementation of various fall prevention interventions to the reduction of falls and fall related injuries. However, Grewal et al. (2017) showed heart rate and respiratory rate did not play a factor in the reduction of falls. The methodology of Grewal, et al. (2017) was questionable and poorly controlled because there was a lack of actual falls, and the Hendrich II fall risk assessment scale was not the most appropriate method in identifying risk of falling. In closing, the current articles utilized have shown the compliance of nursing staff in fall prevention has led to a reduction in falls and fall related injuries.

Chapter III

Research Design

   The student researcher utilized a non-experimental, quantitative, and comparative design. The non-experimental design was appropriate because the student researcher did not manipulate the independent variables. The student nurse researcher collected data with no external variables being introduced. The comparative design helped determine the differences among two groups within a target population. This type of design provided adequate sampling for the student nurse's hypothesis.

Variables

   The student researcher clearly defined the variables within the study. The independent variable was determined to be whether the setting was a dementia room or a non-dementia nursing home room. The dependent variable was defined as compliance with fall prevention interventions. The Fall Prevention Intervention Checklist (Appendix A) was defined as the control variable; the student researcher guaranteed its control by strictly abiding by its set criteria. Some extraneous variables were also considered in the research study to affect the resident rooms. Resident family members cluttering the rooms with personal items, and various people other than the healthcare professionals in charge of compliance could affect the layout of the room. These variables could have placed unintended fall risks within the rooms and could have potentially affect the student researcher observations and subsequent survey findings. These were extraneous variables the student researcher could not control, for they were according to preferences rather than interventions. Determining the independent, dependent, control, and extraneous variables was an important step in the research study.

Selection of Subjects and Rooms

   The target population of the study included dementia and non-dementia nursing home rooms. The accessible population included rooms at a small rural nursing home located in the southeastern region of the United States. Permission was received from the nursing home prior to data collection. There were no compensations or incentives involved in this study.

   The student researcher had an adequate sample of 10-15 occupied residents' rooms for each category. Thus, the student researcher had a total sample of 30. Thus, the amount of data collected at the nursing home was adequate to represent all occupied nursing home residents' rooms in the southeastern region of United States.

Statistical Analysis

   The student nurse researcher utilized the *t*-test. The *t*-test was a test used to determine the differences in scores between two different groups. A *p* value of 0.05 was used to define a statistically significant difference between the two groups. If the calculated value was equal or higher than the critical value, then the difference was statistically significantly, and the null hypothesis could be rejected.

Data Collection Instrument and Procedure

   The data the student nurse researcher collected was the compliance of nursing professionals in the nursing homes with fall prevention interventions. After approval from the project advisor and Institutional Review Board (IRB), a designated nursing home staff member gave written

consent prior to the implementation of this study (Appendix B). The student nurse researcher requested to observe the occupied dementia and non-dementia resident rooms in the nursing home. The two rooms were identified as A and B. Convenience sampling was chosen to be utilized, and 14 dementia resident rooms and 16 non-dementia resident rooms were observed. The student nurse researcher entered the room and observed for compliance of fall prevention interventions without disclosing the purpose of the observation to the resident.

When the student nurse researcher entered each room, she explained to the resident or visitor that she was from the Mississippi University for Women (MUW) Bachelor of Science in Nursing (BSN) program and was conducting a research study in occupied resident rooms. The student nurse researcher created a formal script when asking the resident or visitor if the student nurse researcher could evaluate the room. If the resident or visitor refused, the student nurse researcher thanked them and exited the room. That room was discarded from the study. If the resident or visitor agreed, the student nurse researcher continued with collecting data.

The data collection instrument was created by the student nurse researcher and was approved by a panel of experts. Reliability had not been previously determined because it was a newly devised tool. Only face validity was determined. The data was collected through the use of an observational checklist, FPIC, that was completed with criteria regarding fall prevention interventions. The FPIC consisted of seven demographic questions and ten questions which evaluated the actual fall preventions being utilized in each resident's room. The questions were answered by yes, no, or not applicable. The student nurse researcher determined the interventions on the FPIC were appropriate standards based on JCAHO. Each intervention counted for one point and the percentages of intervention compliance were compared between dementia and non-dementia rooms. The healthcare employees in the nursing home were not informed of the student nurse researcher's purpose of the study. Resident identifying information was not obtained or utilized during the research.

Limitations

The student nurse researcher identified the following limitations:

1. The student nurse researcher was given limited time to gather the data for the study.
2. Residents or visitors were given the option to refuse the student nurse researcher from entering the room. This could have decreased the number of rooms from the study.
3. The main staff could have warned employees about the study, giving them time to resolve any problems in the rooms.
4. There were a limited number of residents on the units. This reduced number of residents which also reduced the sample size of the research.
5. The residents or visitors in the rooms could have manipulated the room, and this could have implied the nursing home staff were not following the fall prevention interventions.
6. The student nurse researcher used convenience sampling, which may not be representative of all dementia and non-dementia nursing home rooms in the United States.

Chapter IV

Results of Study

The purpose of the student researcher's study was to determine if there was a difference between compliance with fall prevention interventions between dementia and non-dementia nursing home units. The original research hypothesis stated dementia nursing home units would be more compliant of fall prevention interventions than non-dementia nursing home units. The null hypothesis stated there would be no statistically significant difference in the compliance of fall prevention interventions between dementia and non-dementia nursing home units. After data collection and analysis, the student nurse researcher determined non-dementia nursing home units were less compliant with fall prevention interventions than dementia nursing home units. Because there was a statistically significant difference between dementia nursing home units and non-dementia nursing home units, the student nurse researcher rejected the null hypothesis. Ultimately, according to the data analysis, dementia nursing home rooms were more compliant with fall prevention interventions than non-dementia nursing home rooms.

Statistical Analysis

In order to analyze the observed data, the student nurse researcher designed the Fall Prevention Intervention Checklist (See Appendix A) to evaluate the nursing home units. The criteria listed on the checklist was determined by current research regarding fall prevention interventions. Each criteria were marked yes, no, or not applicable depending on the compliance of each room. The total number of resident rooms observed was 30 rooms. The student researcher excluded any room not assigned to a resident. Sixteen rooms were observed in the non-dementia nursing home unit, and 14 rooms were observed in the dementia nursing home unit. The non-dementia nursing home unit had an average score of 77% on the fall prevention intervention checklist. Fourteen rooms observed in the dementia nursing home unit had an average score of 84%. Figure 1 represented the percentage of compliance between dementia and non-dementia nursing home units for each non-demographic question within the fall prevention intervention checklist. Among the non-dementia nursing home unit, call light not being within reach and upper rails not being raised were the interventions with which the unit was less compliant. Bed wheels locked and presence of identification bands on residents were interventions that were accounted for 100 percent of the time within the dementia and non-dementia units. Additionally, none of the beds had bed alarms, every resident had either non-skid socks or shoes on, and none of the rooms had clutter in the residents' pathway.
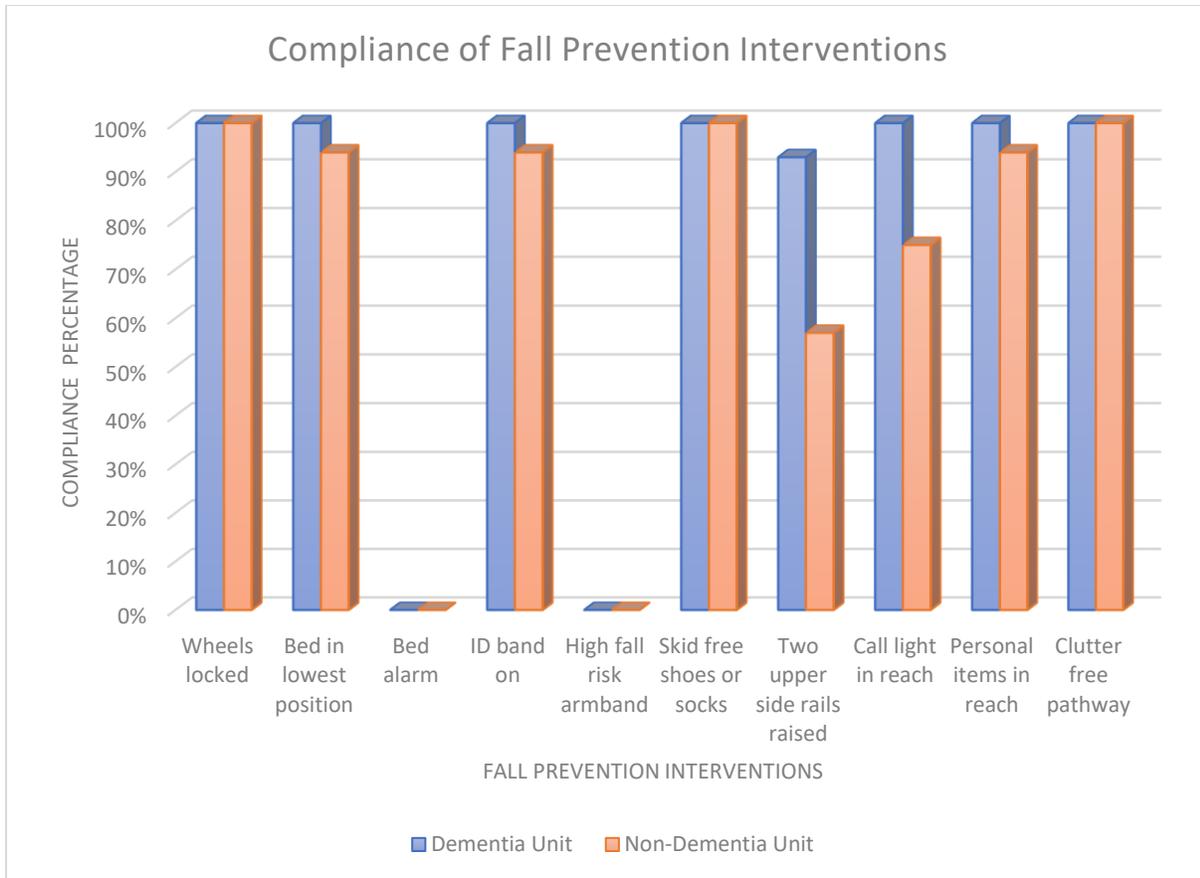
Figure 1. Compliance of Fall Prevention Interventions

   The student nurse researcher utilized a *t*-test to analyze for statistically significant difference of scores between dementia and non-dementia nursing home units. The *t*-test result was 2.283 and the *p* value was 0.030. With the *p* value smaller than 0.05, the student nurse researcher rejected the null hypothesis, which stated that there was no statistically significant difference in the compliance between the dementia and non-dementia nursing home units. Table 1 illustrated the representation of the dementia and non-dementia nursing home units and the total number of observed resident rooms within the units.

Table 1

t-test table

Dementia vs Non-Dementia Nursing Home Units Compliance	
t	2.283
df	28
p	0.030

Similarities Among Research Studies

When comparing the data to the literature, the student nurse researcher determined universal fall prevention protocols affected the possibility of physiological falls. These falls were preventable by changing the environment and placing interventions in place while effectively following these interventions (Nuckols et al., 2017). These falls could be caused by external factors such as spills, cords, or any alteration that may unsteady the resident. The nursing home that the student nurse researcher observed had universal fall prevention interventions in place.

The most similar findings found in the review of literature was that education was essential for fall prevention compliance, such as in the study by Tzeng and Yin (2015). The more the staff was educated on fall prevention, the more compliant they were likely to be. The student nurse researcher also recognized within the studies that the implementation of fall prevention interventions reduced the risk of falls within the healthcare setting. The study conducted by Grillo et al. (2019) as well as the study conducted by Hicks (2015) both emphasized the importance of the implementation of fall prevention interventions within a healthcare facility; hourly rounds. Purposeful monitoring of patients decreased the risk of falls for patients and was also proven to reduce patient fears regarding the possibility of falls.

Contradictions Among Research Studies

Of the various studies analyzed throughout the review of literature, the student nurse researcher did not find a study that contraindicated their findings. Each study analyzed had positive outcomes with fall prevention standards such as the implementation of hourly rounding, utilization of mobility cards, and enforcement of evidence-based fall prevention programs. Hospitals continuously intervened and evolved to find what they could do to increase the compliance in fall prevention to produce a decreased number of falls and ultimately improve patient outcomes. Although the eight articles researched by the student nurse researcher did not reflect any contraindications, the research articles could have been more thorough. Most of the literature focused only on one hazard as opposed to a global view of fall prevention.

Limitations of the Study

The student nurse researcher identified the following limitations of this research:

The first limitation identified was the possibility of staff being alerted of the student nurse researcher's study and correcting residents' rooms before the student nurse researcher checked them.

- Another limitation identified was the student nurse researcher only examined environmental factors for fall prevention intervention compliance. Other factors that could have been further researched on fall prevention interventions included level of consciousness, polypharmacy, and diagnosis of the resident.
- Likewise, the student nurse researcher identified sample size as another limitation. The student nurse researcher experienced low resident census in the dementia nursing home units and non-dementia nursing home unit. The limited sample size of 10-15 per subset could not be generalized to all dementia and non-dementia nursing home units.
- Moreover, another limitation recognized was a limited number of days to collect data due to time restraints, which led to a limited amount of data.
- The last limitation identified was the fall prevention intervention checklist. The tool was devised by the student nurse researcher and approved by a panel of experts giving it only face validity.

Alterations from Proposal and Serendipitous Findings

The student nurse researcher conducted the study in a nursing home in the southeastern region of the United States. She found one alteration in the proposal after the research study was conducted. The seventh demographic question prohibited the student researcher getting data from the rooms absent of a resident. However, due to time constraints and unit design, the student researcher gathered the data regardless of presence of the residents in their room. Mississippi University for Women's IRB and nursing home personnel approved the research design. Nursing home personnel signed a consent form to carry on the research study. The student nurse researcher conducted the study by entering the resident's room and obtaining consent from the residents and/or their visitors if present in the room (not in dementia nursing home unit). The student nurse researcher had a script, which was utilized upon entering each resident's room in non-dementia nursing home unit. The student nurse researcher went to the nursing home on her own and observed the compliance in each room while the nursing home personnel guided her in the nursing home through the units. After data collection, the data was compiled for statistical analysis.

After the data had been collected and interpreted, the student nurse researcher discovered three serendipitous findings. One of the demographic questions contradicted with the process. It read "if the resident's room is empty, do not evaluate." However, in the dementia nursing home units, almost all the residents were out of their rooms. Due to time restraints and the way the unit was set up, the student nurse researcher observed the compliance of the rooms regardless of the rooms' occupancy. Similarly, the non-demographic question "clutter in patient pathway" should have been worded as "is pathway clear of clutter" so that it would be consistent with the other questions. This would allow all "no" responses to be associated with non-compliance, and all "yes" responses to represent compliance within the patient rooms.

In the dementia as well as the non-dementia nursing home units, the units did not have bed alarms on any beds, every resident had non-skid socks or shoes on, and no rooms had clutter in the residents' pathway. In the nursing home utilized, each employee was required to complete a fall prevention orientation and training annually. Each year, the facility emphasized the importance of fall risks and implementing preventions. The current data had statistical significance among compliance with fall prevention interventions; thus, the results informed the student nurse researcher the dementia nursing home units were more compliant than the non-dementia nursing home unit of the fall prevention interventions.

Chapter V

Summary

  The objective of this study was to evaluate the difference in compliance of fall prevention interventions between dementia and non-dementia nursing home units. One nursing home in the southeastern region of the United States was utilized. Data was collected from one dementia and one non-dementia nursing home units. The student nurse researcher hypothesized that dementia nursing home units would be more compliant of fall prevention interventions than non-dementia nursing home units. The null hypothesis stated that there would be no statistically significant difference in the compliance of fall prevention interventions between dementia and non-dementia nursing home units. The study was a non-experimental, quantitative, and comparative research design intended to compare compliance rates between dementia and non-dementia nursing home units. The student nurse researchers utilized the *t*-test to determine the difference in compliance between the two units.

  The study sample consisted of 30 patient rooms. Sixteen rooms were observed in the non-dementia nursing home unit, and 14 rooms were observed in the dementia nursing home unit. These rooms were selected with the convenience sampling method by evaluating only occupied rooms that were available. The data collection instrument used was the Fall Prevention Intervention Checklist (See Appendix A). This checklist was used to evaluate the compliance of the fall prevention interventions.

  The student nurse researcher expected there would be no significant difference between dementia and non-dementia nursing home units. When the data was analyzed, it showed that there was statistical difference between the two units. Therefore, the student nurse researcher rejected the null hypothesis.

Nursing Implications

  In the healthcare setting, safety remained a top priority among patient-centered care. A major component of patient safety included fall prevention in addition to other various areas of healthcare such as medical treatments and psychological treatments. The student nurse researcher discovered the factors that were most frequently absent in the rooms evaluated included the bed alarm not being turned on, the absence of fall related color-coded door hangers, and frequently used items not being within reach.

  The research performed by the student nurse researcher implied that education on fall prevention interventions was one of the most important factors in fall prevention. Residents (non-dementia nursing home unit) must be educated when they enter the nursing home in order to decrease fall risks during their stay. Residents' families should also receive fall prevention intervention education so that they were aware of their surroundings while visiting the residents in order to decrease the residents' risks for falls.

  The student nurse researcher discovered the nursing home staff on both units had received education regarding fall prevention interventions. The student nurse researcher associated the education received through the nursing home training with the high percentage of criteria in compliance with the fall prevention intervention checklist. This education should be continued in order to maintain high fall prevention intervention compliance.

Recommendations

The student nurse researcher recognized several modifications for future research studies while conducting their research:

- Include more in-depth factors in the checklist, such as level of consciousness, presence of polypharmacy, and the various diagnoses of the resident.
- Using such a small sample size from only one location resulted in a limited number of days to collect data. Take a larger sample size from multiple geographical locations in order to ensure a more accurate sample was taken to represent the population. That in turn would result in a more flexible time frame to collect data.
- Use a tested and verified tool; many of the limitations in this research were a result of developing a new tool, for it had multiple discrepancies within the demographic and non-demographic questions that negatively impacted the overall statistical analysis.
- Utilize different populations for comparison of the results.

Theoretical Application

The research study fit with Martha Roger's theory "Science of Unitary Human Beings" in many ways. The theory suggested patient's environment was an essential factor when regarding the recovery or outcome of the patient's health (Fawcett, 2016). The student nurse researcher found the environmental factors played an important role in the residents' safety. The student nurse researcher's core premise was to observe the environmental factors to ensure compliance of the fall prevention interventions; thus, reduced fall risk of the residents. The environmental factors in consideration in the research aligned with the recommended fall prevention guidelines by the JCAHO. The compliance of these interventions protected residents from further injuring and reduced hospital stays.

Conclusion

In conclusion, the purpose of this study was to determine the compliance of fall prevention interventions between dementia and non-dementia nursing home units. The student nurse researcher hypothesized the dementia nursing home units would be more compliant than the non-dementia nursing home units. However, the student nurse researcher concluded the data collected showed significant statistical differences. Therefore, the student nurse researcher rejected the null hypothesis, which stated there would be no statistically significant difference in the compliance of fall prevention interventions between the dementia and the non-dementia nursing home units. The student nurse researcher found the most common reasons for less compliance: some beds side rails were not raised, one resident did not have his ID band on, one bed was not in the lowest position, and one resident did not have his personal items (his bag) within reach. All of these were found in the non-dementia nursing home unit. The student nurse researcher speculated the dementia units were more compliant because those residents require more attention from the staff. The student nurse researcher also speculated both the dementia and the non-dementia nursing home units had adequate fall prevention education and compliance when preventing falls due to environmental factors.

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Appendix A

__Fall Prevention Intervention Checklist__

Upon entering the room, state to the resident the following statement:
"Hello, my name is, _____. I am a nursing student from the Mississippi University for Women, and I am conducting a research study regarding nursing home resident rooms. Do you mind if I take less than five minutes to look around your room?"

If the resident or visitor refuses, then the student nurse researcher will thank them, leave the room, and not include that room in the data.

If the resident or visitor gives consent, then the student nurse researcher will begin their observation. Upon leaving the room, thank the patient for their participation.

1. What type of room is being evaluated?   Dementia or Non-

    Dementia

2. Is the resident currently in restraints?   Yes or No

3. Are family members present?   Yes or No

4. Is the resident currently in the bedside chair?   Yes or No

5. Is the resident currently in the nursing home bed?   Yes or No

6. Is the resident currently in the bathroom?   Yes or No

7. Is the resident out of the room?   Yes or No

    1. If yes, do not evaluate this room.

1.Bed/wheels locked	Yes	No	N/A
2.Bed in lowest position	Yes	No	N/A
3.Bed alarm/Tether alarm present	Yes	No	N/A
4. ID band on	Yes	No	N/A
5. Does the resident have a high fall risk armband?	Yes	No	N/A
6. Skid free socks or nonskid shoes	Yes	No	N/A
7. Upper side rails up x2	Yes	No	N/A
8. Call light in reach	Yes	No	N/A
9. Personal items within reach. Identify what items are present.	Yes	No	N/A
10. Clutter in resident pathway	Yes	No	N/A

Appendix B
Nursing Home Consent Form

February 6, 2020

Mississippi University for Women
Bachelor of Science in Nursing
1100 College St W- Box 910

To Whom It May Concern:

I am currently enrolled as senior nursing student in the baccalaureate nursing program at Mississippi University for Women. I am a group conducting a study that is required for my independent research class for my honors school. I have developed a checklist that measures the presence of fall prevention interventions in dementia and non-dementia nursing home rooms. I am asking your permission to survey rooms that are occupied by residents.

I am seeking permission to survey a minimum of 20-30 resident rooms on both dementia and non-dementia units of this nursing home. The checklist contains 10 items that I will be observe. The checklist will not involve any identifiers and will not affect the residents or healthcare staff in any way. Before I enter and observe the room to conduct the study, I will ask each resident for their permission. This also will not have any effect on the facility. There is a copy of the checklist in this letter for your viewing.

Your consent to allow me to attain this information in my study will give us a better understanding of how fall prevention interventions are implemented in dementia and non-dementia units of a nursing home.

Thank you for your time and consideration in making this decision regarding my research project. Please select the appropriate response below with your title and signature. I will retrieve this form at your earliest convenience. Please contact Amy Shaw at 662-574-5240 or through email at alshaw@muw.edu when completed.

Sincerely,

Garima Shrestha

_____ Yes, I give permission for the student researcher to conduct this observation.
_____ No, I do not give my permission for the student researcher to conduct this observation.

_____   _____   _____
Printed Name and Title   Signature   Date

_____
Facility

Appendix C
Institutional Review Board (IRB) Approval

The
W Mississippi University
for Women
A Tradition of Excellence for Women and Men

Provost and Vice President for Academic Affairs
1100 College St. MUW-1603
Columbus, MS 39701-5800
(662) 329-7142
(662) 329-7141 Fax

www.muw.edu

December 3, 2019

Ms. Amy Shaw
Mississippi University for Women
College of Nursing and Health Sciences
1100 College Street, MUW-910
Columbus, MS 39701

Dear Ms. Shaw:

I am pleased to inform you that the members of the Institutional Review Board (IRB) have reviewed the following proposed research and have approved it as submitted:

Name of Study:	Compliance with fall prevention interventions in dementia vs non-dementia nursing home units.
Research Faculty/Advisor:	Ms. Amy Shaw
Investigators:	Garima Shrestha

I wish you much success in your research.

Sincerely,

Scott Tollison

Scott Tollison, Ph.D.
Provost and Vice President for Academic Affairs

ST/tc

pc: Irene Pintado, Institutional Review Board Chairman