An Educational Intervention to Reduce Falls Associated with Benzodiazepine Use in Older Adults: A Quality Improvement Project.

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Abstract

Benzodiazepines are prescribed for the treatment of anxiety, insomnia, and other disorders and are prescribed often in elderly patients. However, they are associated with side effects such as drowsiness, dizziness, impaired coordination, cognitive impairment, and risk of falls. Despite recommendations for their limited use, benzodiazepine prescriptions are still common, which has led to falls in this vulnerable population. This quality improvement project is based on the lack of knowledge of the staff regarding the risks associated with benzodiazepines and the high fall rate among elderly residents living at a long-term care facility (LTCF) located in West Palm Beach, Florida.

The project involves an educational intervention in the form of a PowerPoint presentation with a focus on the effects of benzodiazepine use in the elderly. Some of the staff members, including certified nursing assistants (CNAs), were trained on how to do fall risk assessment, recognize the side effects of benzodiazepine, and prevent falls. Knowledge level gains by the staff were assessed by pre- and post-tests.

The project followed the number of falls observed for two months of implementation and provided an educational intervention. The conclusion drawn from the study was that staff awareness was enhanced, and it was possible to observe a shift in the number of fall rates concomitant with benzodiazepine use. Giving certified nursing assistants (CNAs) the knowledge to systematically identify and manage the risks associated with benzodiazepine use is also directly related to patient safety and quality of care.

Implications of the findings point to the possibility of using educational interventions for Staff in other long-term care facilities (LTCFs) to help prevent benzodiazepine-related falls. This project shows that staff education has to be a continuous process while it has to be understood that initiatives for improving safe medication practices have to be implemented on a facility-wide level to promote the well-being of older adults.

Keywords: Falls, Educational intervention, Benzodiazepines, Elderly, Long-term care facilities (LTCFs)

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Introduction

Problem Statement

Benzodiazepines are a category of psychoactive pharmacological substances that include drugs such as diazepam (Valium), alprazolam (Xanax), lorazepam (Ativan), and clonazepam (Klonopin). Those classes of tranquilizers can treat a range of conditions such as anxiety, insomnia, and seizures. They are frequently prescribed to older adults and patients with mental health disorders. However, the use of benzodiazepines can lead to side effects such as drowsiness, dizziness, impaired coordination, and an increased risk of falls (Gress et al., 2020).

Falls are a major concern for older adults, often leading to serious injuries and loss of independence. While medications like benzodiazepines are known to increase fall risk, many other factors play a role (Patti & Gupta, 2023). Physical issues such as muscle weakness, poor balance, or chronic conditions like Parkinson's and diabetes can significantly raise the risk of falling. Vision and hearing problems also make it harder to navigate hazards safely. Conditions like orthostatic hypotension, where blood pressure drops when standing, can lead to dizziness and instability.

The patient's environment, like cluttered spaces, poor lighting, slippery surfaces, and a lack of handrails or assistive devices, also play a role in increasing falls. Lifestyle choices can also affect the risk of falls. For instance, wearing inappropriate footwear, dementia, or depression, which impact judgment and physical activity. Addressing and ruling out all those factors can help pinpoint the cause of falls in older adults (Patti & Gupta, 2023)

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The increased use of benzodiazepines among individuals aged 65 and older has become a major public health concern due to the increased risk of falls and other potential dangers, such as cognitive impairment and hospitalizations. Despite the fact that the American Geriatrics Society has recommended avoiding prescribing these drugs for a long period of time for the elderly, the proportion of older adults taking benzodiazepines is still increasing (Mokhar et al., 2018). Research shows that an average of at least 30-50% of older adults regularly use benzodiazepines over the longer term, months, or years on end, despite recommendations that they should only be used for short-term treatment of acute problems (Gress et al., 2020). This chronic benzodiazepine use at this high level dramatically increases the risk of falls for seniors (Edinoff et al., 2021).

Background

The primary goal of this project is to enhance patient safety by minimizing the incidence of falls associated with benzodiazepine use among residents through targeted staff education. At this moment, there are no protocols specific for the use of benzodiazepines in the facility, which creates a big gap between where we are and the position that is supported by the evidence. Over the months of August, September, and October 2024, this facility has recorded 24 falls. The project provides overall education to the staff to fill the gap and empower them with the required knowledge and skills to make informed decisions when taking care of the residents. Therefore, it improves the safety and well-being of the patients.

Educational interventions could be targeted at staff members directly engaged in the care of residents. Implementing such interventions can decrease the incidence of falls associated with the use of benzodiazepine use, thereby enhancing safety and quality of care across LTCFs. To prevent falls, staff should perform fall risk assessments for each patient. The assessment is based on the patient's risk factors, medical history, medications, and mobility status. With this assessment, appropriate fall prevention strategies can be determined. Staff needs to be educated

about any potential side effects of such a drug, especially the risk of falls. The educational intervention could include counseling sessions, educational brochures, videos, and support groups, among others so that they are completely aware of the risk factor of benzodiazepines. This DNP project will address this issue by carrying out an educational intervention program for the staff at the private facility in West Palm Beach, Florida

It is essential to provide staff with comprehensive information about benzodiazepines' addictive properties and the potential adverse events, especially falls, associated with the long-term use of these drugs. This action will empower them to make informed decisions and take necessary precautions to safeguard their health.

Significance

Falls related to benzodiazepine usage are a significant issue. Studies indicate a strong association, and some reports suggest the percentage of falls associated with benzodiazepine use in older adults is approximately 44% (Appeadu & Bordoni, 2023). Falls related to the use of benzodiazepines among older adults may be precipitated by several factors. In the first place, many of these seniors are prescribed benzodiazepines for anxiety, insomnia, or other ailments at the behest of their well-meaning providers. Subsequently, they may use benzodiazepines daily for months or years while avoiding tapering even after the initial cause has been resolved. (Reid Finlayson et al., 2022). Moreover, benzodiazepines are frequently prescribed to older individuals who have dementia-related neuropsychiatric symptoms and behaviors as a form of chemical restraint despite guidelines advising against this practice (Rochon et al., 2019).

The cost of falls related to benzodiazepine use is also hefty and includes economic impacts such as falls, hip fractures, dementia, and motor vehicle collisions. The cost of falls among U.S. adults over 65 years old linked to benzodiazepine use in the healthcare system tops at over $ 1 billion per annum (Wickwire et al., 2023). Approximately $5 billion per annum is the estimated

cost of the use of benzodiazepine prescription among older adults in the U.S. when considering visits to health providers, prescription costs for benzodiazepine, and hospitalization, among other associated costs (Maust et al., 2019). Furthermore, in the general population, benzodiazepines were involved in nearly 7,000 overdose deaths in 23 states from January 2019 to June 2020 which account for 17% of all drug overdose deaths (cdc.gov, 2021). In the United States, the population of older adults has grown due to advances in healthcare, particularly preventative medicine, which has extended lifespans. This growth is primarily ascribed to the baby boomer generation, who was born between 1946 and 1965. Unfortunately, this generation has been more exposed to substance abuse throughout their lives than earlier generations. It is expected that by 2030, there will be around 72.1 million adults aged 65 and up in the United States (Lin et al., 2023). As more and more older people live longer, there must be a focus on their specific healthcare requirements.

Summary of the literature

Search Criteria

The literature search for the quality improvement project, “An Educational Intervention to Reduce Falls Associated with Benzodiazepine Use in Older Adults,” was conducted using CINAHL, MEDLINE via ProQuest, PubMed, Google Scholar, and UpToDate. The goal was to gather relevant, evidence-based studies to support the intervention's design and implementation. Search terms were developed around key concepts such as "Benzodiazepine use," "Falls," "Older adults," "Educational intervention," "Fall prevention," and "Quality improvement." Boolean operators (AND, OR) helped refine the search results. For example, searches combined terms like “benzodiazepine use” AND “falls” AND “older adults” AND “educational intervention” to focus on studies most relevant to the project. Database-specific strategies were applied, such as

using filters in CINAHL for "older adults" and recent publications, while PubMed searches included “fall risk” OR “falls” AND “elderly” OR “geriatric” with filters for clinical trials and systematic reviews. Google Scholar was used to find gray literature, while UpToDate provided clinical guidelines and summaries.

Inclusion criteria ensured that articles were published in English from 2018 onward, with a focus on adults aged 65 and older, full-text availability, and relevance to fall prevention, benzodiazepine-related risks, educational interventions, or quality improvement. Studies were excluded if they lacked full-text access, were published in a language other than English, were not focused on geriatric populations, were published before 2018, or were unrelated to the project's objectives.

The practice of prescribing benzodiazepines for older patients in Long Term Care Facilities (LTCF) is problematic and carries many hazards especially those related to falls. Falls are a common and severe health issue among the elderly, which results in severe complications and even death. Specifically, benzodiazepines that are used in the treatment of anxiety and insomnia have been identified as the main cause of falls in this group of people. It is thus important to sensitize all the staff, including Certified Nursing Assistants (CNAs) and Home Health Aides (HHAs), on these risks to avoid fall-related incidents and safeguard the patients (AHRQ.,2014).

The Joint Commission also addresses the issue as part of efforts to contribute to a culture of safety in the healthcare setting (The Joint Commission, 2021). Falls are a leading cause of injury for people in hospitals, long-term care facilities, and those receiving home care. To tackle this, it’s essential for organizations and facilities to carefully evaluate each patient’s risk of falling. This involves looking at factors like their fall history, medications, alcohol use, and overall balance or mobility. It’s also important to make sure they’re using any assistive devices correctly and to assess their environment for potential hazards. Addressing these points can significantly lower the chances of falls and the injuries they can cause.

The literature review also indicated that benzodiazepine contributes to the probability of falling among the elderly. Díaz-Gutiérrez et al. (2017) in a systematic review also pointed out that patients on benzodiazepines are prone to fall regardless of mono or polytherapy. According to this review, it was suggested that to eliminate the effects that lead to falls among patients, long-acting benzodiazepines should not be used (Díaz-Gutiérrez et al., 2017). Moreover, benzodiazepines should be prescribed in accordance with the current clinical recommendations and their use should be reconsidered periodically in order to decide whether they are still necessary and effective.

It is important to note that falls are a big issue in healthcare because they have serious outcomes, especially for elderly patients. It should be noted that falls account for the highest incidence of injuries among senior citizens, including fatal ones. The CDC has reported that one in four people aged 65 years and above falls annually and the associated medical expenses are more than $50 billion. These falls lead to fractures, head injuries, and hospitalization which is a burden to the healthcare system and greatly impacts the quality of life of older adults (CDC, 2024).

The geriatric population is especially prone to falls because of several reasons. Age-related physical factors like muscle weakness, poor balance, and vision all put the elderly at higher risk of falls. Also, elderly patients are more apt to have one or more comorbidities like diabetes and arthritis that would also significantly affect their balance. Multimorbidity and, thus, polypharmacy is prevalent in this population and results in side effects that predispose patients to falls (Cuesta-Triana et al., 2019). Other factors that have been known to increase the elderly's fall risk include urinary tract infections and cognitive impairments like dementia.

Benzodiazepines are especially dangerous in this regard because of their sedating activity that reduces motor skills, response velocities, and mental performances. These drugs act by increasing the action of the neurotransmitter GABA responsible for the central nervous system

depression. This sedation may cause dizziness, confusion, and decreased alertness which are factors that may lead to falls. Research also indicates that benzodiazepines increase the risk of falls and falls-related injuries in elderly patients with the risk being higher in the first few days of treatment and at higher doses (Huang et al., 2019). This risk is especially so when benzodiazepines are taken alongside other sedative products.

Certified Nursing Assistants (CNAs) and Home Health Aides (HHAs) are the primary frontline in preventing falls in long-term care facilities. Due to the constant and frequent contact they have with residents, they are in a better place to assess residents for fall-prone. CNAs and HHAs can help in performing fall risk assessments, check for and eliminate risks within the home environment, and help with mobility and other tasks. They are also useful in the administration of care plans intended to prevent falls like wearing shoes with non-slip soles, adequate lighting, and the use of walking aids.

Falls are common among patients on benzodiazepines and therefore CNAs and HHAs should have adequate information on the various measures that can be taken to prevent falls. Education should therefore aim at identifying the effects of these medicines and how they lead to falls. It is recommended that staff should be trained to observe for symptoms of dizziness, confusion, and instability among the residents who are given benzodiazepines. Besides, they should be informed about the need for medication reconciliation and other aspects connected with deprescribing. According to Ganz and Latham (2020), reporting side effects that are noticed by the patient as well as falls is also essential in communication with healthcare providers. Implementing the interventions with the basis of the evidence, like the strength and balance exercises, can help to decrease the risks of falls even further.

The side effects of benzodiazepine are also described in the nursing home patients. Ray et al. (2000) in a historical cohort study of 2,510 residents of 53 Tennessee nursing homes found out that the incidence of falls among benzodiazepine users was 44% higher than that of non-users.

The results of the research showed that the risk of falling was the highest during the first week of the benzodiazepine treatment and still remained high after one month of treatment (Ray et al., 2000). This requires CNAs and HHAs to monitor the patient more especially when the patient is beginning his or her therapy and at night because falls occur most at night.

Jiang et al. (2019) extended the analysis of the relationship between benzodiazepine use and falls among LTCF residents in China. They established that both insomnia and benzodiazepine use raised the chances of falls and falls with injuries. This study recommends the use of non-pharmacological interventions in the management of poor sleep quality and the safer use of hypnotics to prevent falls (Jiang et al., 2019). Raising awareness of these alternatives and the particular dangers of benzodiazepines among the staff can contribute to the development of more efficient measures to prevent falls.

In a similar tone, Martinez-Cengotitabengoa et al. (2018) revealed that among the older adults who came to the emergency department complaining of a fall, a large number of these patients were taking benzos. Interestingly, most of these prescriptions included doses above the normal, which clearly indicates that there is a need to be very keen on how we manage medications (Martinez-Cengotitabengoa et al., 2018). It was also noted that men were exposed to higher doses as compared to women.

Therefore, it is crucial to raise awareness among the staff working in LTCFs regarding the hazards of benzodiazepine consumption and methods of preventing falls. Thus, CNAs and HHAs can contribute to the improvement of the safety of older adults by providing extensive educational programs and recommending non-pharmacological treatments for insomnia and anxiety. It not only decreases the rate of falls but also has a positive impact on the quality of care given in these institutions (AHRQ.,2014).

Purpose/ PICO Clinical Questions/Objectives

Purpose

The use of benzodiazepine amongst the older population has emerged as an issue, due to the adverse effects it contains, ranging from an increase in the sensation of drowsiness to cognitive impairment and even further increased vulnerability to falls and fractures (Airagnes et al., 2018). These outcomes significantly impact the general quality of life and well-being of older persons, including more use of healthcare services, longer hospital stays, and rehabilitation (Airagnes et al., 2018).

Choosing a private Senior Living Facility for this project is based on several factors. The facility has documented frequent fall incidents by its residents, which have propelled the administration and employees to be strongly committed to enhancing the care and safety of residents. In this case, they are most likely to take part in and support the project actively. The other reason for the intervention is that the residents are prone to falling due to their age, existing comorbidities, or already being on medication, justifying the need. Lastly, the facility can offer a supportive environment for implementing and testing educational interventions; thus, providing a great opportunity to display the effectiveness of the project and perhaps scale the program to other facilities.

Beyond individual health consequences, falls related to the use of benzodiazepines among older adults carry significant financial implications for the healthcare systems. Admissions resulting from falls and fractures increase the workload on healthcare units, which strains resources in healthcare facilities (Wickwire et al., 2023). The purpose of the DNP project is to create and implement an educational intervention for the staff aimed at the reduction of falls related to benzodiazepine usage.

PICO Clinical Questions

The PICO question is: Will an educational intervention for the staff about the risks of falls related to benzodiazepine use, compared to no educational intervention, reduce the incidence of falls associated with benzodiazepine usage?

Population: Staff members composed of nurses and nursing aids working at an assisted living facility located in West Palm Beach.

Intervention: A classroom-style educational session expected to last approximately 20-30 minutes in the form of a PowerPoint presentation will be utilized to provide the staff with a comprehensive understanding of benzodiazepine medications and their benefits while emphasizing the associated risks, particularly the risk of falls. The presentation will emphasize the importance of reducing the number of falls related to benzodiazepine use in the older.

Comparison: Compare the number of falls associated with the use of benzodiazepines in the two months prior to and following the introduction of the educational intervention at the private Senior Living.

Outcome: The critical change is a decrease in the incidence of falls related to benzodiazepine usage in older people.

Goals and Outcomes (SMART)

Specific: Increase knowledge of the staff in order to reduce the number of falls associated with the use of benzodiazepine in adults 65 and older by at least 20% at the living facility.

Measurable: The DNP student will compare the number of falls related to the use of benzodiazepine in the two months before and after the implementation of the educational

intervention at the assisting living facility. Furthermore, the DNP student will evaluate the improvement in knowledge as an outcome variable using a pretest-posttest questionnaire. The results from both tests will be analyzed and compared to determine the extent of the improvement.

Achievable: To implement a learning intervention delivered via a PowerPoint presentation to train the staff on how to recognize the risks of falls related to benzodiazepine use and make rightful decisions concerning the safety of the residents.

Relevant: As the staff provides most of the hands-on care to residents, an educational intervention can empower them to monitor and report adverse events and enhance the safety of residents. This can help reduce falls related to benzodiazepine use in older adults and improve overall care quality in the facility.

Time-bound: To achieve this goal by the end of the educational program in November 2024, and compare the results after two months of implementation.

By setting this SMART goal, we can ensure that we have a clear and specific objective, a way to measure our progress, a realistic plan, a relevant problem to solve, and a timeline to achieve our goal. One of the measurable, evidence-based goals for this DNP project is to decrease the incidence of benzodiazepine-related falls in the elderly. This educational program will help the staff to be adequately educated on the comprehensive content in order to effectively identify signs and symptoms that are related to falls resulting from benzodiazepine use. The goal of this DNP project is to improve the well-being and quality of life of the patients residing at the Senior Living Facility by closing the gap between the current situation and the evidence-based goal.

Definition of Terms

Benzodiazepines

One group of drugs mainly causes sleepiness, reduced anxiety, suppression of other types of seizures, and muscle relaxation. It is a class of medications that can enhance the effects of GABA (gamma-aminobutyric acid), the primary inhibitory neurotransmitter in the central nervous system (Mokhar et al., 2018).

Adverse events

An adverse event is an incident that results in harm to a patient while receiving medical care. This can include anything from an unexpected reaction to medication or treatment to a surgical error or a misdiagnosis. Adverse events can cause a wide range of negative outcomes, such as falls, prolonged hospital stays, disability, and even death. (Skelly et al., 2023).

Assisted Living Facility (ALF)

A residence for seniors that offers supervision and help with basic living routines, including but not limited to bathing, clothes putting on, and medication management, with other support services, but not assuming the level of medical care offered by nursing homes (Sloan & Hung, 2023).

Older Adults

People usually above 65 years old may suffer from age-related pathophysiologic changes like physical, cognitive, and functionality loss, which predispose geriatric patients to adverse reactions with benzodiazepines (Mokhar et al., 2018).

Patient Education

Nurses attempt to supply patients with information and resources that eventually improve their knowledge of managing health conditions, self-care, and treatment decisions, thereby promoting patients' health (Mlambo et al., 2021).

Fall Risk

One of the critical risk factors contributing to the increased likelihood of older adults falling is mobility impairment, which in turn results from age and co-morbidities (Mokhar & Usmanov, 2018). Consequently, older people may get injured or hospitalized, and the quality of their lives may decline.

Staff

In relation to health care, staff can be described as all the people working in a given health care facility such as doctors, nurses, administrative employees, and helpers among others who are responsible for the care of the residents.

Certified Nursing Assistant (CNA)

A Certified Nursing Assistant (CNA) is considered an allied health professional, who is responsible for giving direct patient care, particularly in daily living tasks, taking and reporting patients' physical and emotional status, and contributing to the implementation of the overall care strategies and interventions under the guidance of RNs and other healthcare workers.

Home Health Aide (HHA)

A Home Health Aide (HHA) is a trained and certified caregiver who assists the staff or patients with personal care, like hygiene and exercise and does light household tasks, such as preparing meals. They also keep an eye on the patient's condition.

Licensed Practical Nurse (LPN)

A licensed practical nurse (LPN) is a health care professional who provides basic care to patients. They monitor vital signs, administer medications, and change bandages. They can also document patient care, maintain health records, and communicate with patients, their families, and their caregivers.

Side Effects

Side effects are adverse and, in many cases, unwanted outcomes that occur as a result of using a certain drug or undertaking a specific therapy. These may be of varying degrees and may affect a patient's general health and functioning. Concerning the side effects of benzodiazepine, some of the side effects include drowsiness, dizziness, and confusion which in the elderly increases the risk of falling.

Conceptual Underpinning and Theoretical Framework of the Project

Lewin's 3-Stage Model of Change Theory

Kurt Lewin's 3-Stage Model of Change Theory is a useful tool in the analysis and management of change within organizations and can be usefully applied in the improvement of patient safety and care in LTCFs. Lewin's model involves three stages: Unfreezing, changing, and Refreezing model (Malik, 2022). The first stage, Unfreezing, is targeted at gaining the staff's attention to the fact that there is a problem with falls and the problem of benzodiazepine use. This can be achieved by offering data on how many falls occur on average in the facility and the characteristics of the resident population that is vulnerable to falls. The objective is to make the staff realize the need for change.

The second stage, Changing, entails the process of delivering the educational intervention. This stage aims to equip CNAs and other caregivers with the necessary information on how to identify patients at risk of falling, manage the side effects of benzodiazepines, and come up with measures to prevent falls (Hussain, 2018). Mentoring, seminars, and information provided by the management can help the employees to adapt to this change. In this phase, the personnel will start implementing changes and measures that are intended to prevent falls.

Lastly, the Refreezing stage aims to ensure that the changes that have been made in the Changing phase are put into the right freezers. This entails the integration of the new practices into the normal activities and system of the facility. It is therefore important to follow up and reinforce the new behaviors from time to time in order to sustain them. Thus, applying Lewin's model, the facility can make a lasting change in practice to improve patient safety and minimize the incidence of falls among elderly patients.

Ronald Lippitt's 7-Stage Model of Change

In 1958 Ronald Lippitt presented a 7-stage model of change which is more detailed than the one presented by Lewin. Lippitt's model includes the following stages: identifying the problem, identifying the client's motivation and ability to change, identifying the resources and motivation of the change agent, identifying progressive change goals, identifying the appropriate role of the change agent, sustaining the change, and finally, phasing out the helping process.

Applying Lippitt's model to the project at the ALF involves the first step of identifying the problem by acknowledging that falls are common and that the use of benzodiazepines is widespread among the company's residents. The following step deals with the readiness and willingness to change of the staff and the management (Szabla, 2019). This involves evaluating the willingness and desire of the patients in the fall prevention interventions.

Another factor, that should be taken into consideration is the available resources and motivation of the change agent in this case the project leader. This involves evaluating factors like the accessibility of teaching and learning resources, leadership supplements, and the firm's readiness. The formulation of objectives such as progressive change objectives like the reduction of the monthly fall rate by a particular measure is helpful in the development of goals that are within the reach of an organization.

Identifying the right role of the change agent entails deciding whether they will perform the role of a facilitator, a trainer, or a consultant. This depends on the needs and the dynamics of the staff as has been discussed in the above analysis. Sustaining the change involves ensuring that support, materials, and encouragement are continually given to the employees to ensure that the new change is well embraced (Szabla, 2019). Last, the process of winding down the helping process is the gradual withdrawal of the change agent as the staff is able to independently manage fall prevention measures. Thus, with the help of Lippitt's 7-Stage Model, the project can effectively consider all the stages of change management in the healthcare environment and improve patient safety and care quality.

Methodology

Setting and Participants

The DNP Quality Improvement project was conducted at a senior living facility in West Palm Beach, FL, which is a housing facility for people with disabilities or adults who cannot or choose not to live independently. The facility has an executive Director, a Marketing Director, a Director of Nursing, and several other staff members, such as LPNs, CNAs, and HHAs, who help by performing daily tasks such as administering medications and providing assistance with residents' personal environment in order to keep patients safe and comfortable. The facility

shelters an average of 70 patients aged 65 years and older. The services and amenities at the ALF are designed to help residents age gracefully in place and enjoy a higher quality of life. Residents have access to a full-service salon, pet therapy, and devotional services. They are also encouraged to participate in group activities, games, and social clubs like craft clubs and live entertainment that provide opportunities for residents to stay engaged with their peers. The project aims to raise awareness of benzodiazepine among the nursing staff and the prevention of falls among elderly residents. Since these caregivers are involved with the residents on a daily basis, their increased awareness and prevention efforts will be critical in decreasing the number of falls and consequently increasing the residents' safety.

SWOT Analysis

Strengths

There are several aspects that speak volumes of the ALF, and these are the strengths that the facility has. The facility has a huge intake capacity, with the current number of residents standing at 70. Both the patients and the caregivers are well engaged in care plans thus creating a team atmosphere. Furthermore, the facility staff collaborates with the healthcare givers hence providing holistic care to the residents. The staff at the facility are supportive of the project, which is aimed at improving the comfort of the patients and delivery of individualistic services.

Weaknesses

However, the following are some of the weaknesses that can be observed in the facility. The costs of operation are quite expensive, and the facility relies on the number of people it admits generating income. Also, some residents have cognitive issues which affect their ability to understand and therefore, may not fully benefit from some of the interventions. There is also the problem of the residents falling frequently which is a major issue.

Opportunities

This is an area of the facility that needs improvement, and this can be done by implementing a structured educational program that could be targeted at staff members directly engaged in the care of residents. Introducing such interventions will aim to decrease the incidence of falls associated with the use of benzodiazepines, thereby enhancing safety and quality of care within LTCFs.

Threats

However, there is a risk which may affect the success of these initiatives. There may be a lack of concern among the staff to acquire knowledge on the fall related risks of benzodiazepine. Also, there can be the issue of staff's reluctance to implement the knowledge acquired and make rational decisions concerning the safety of the residents. Mitigating these threats will be critical to the success of the project.

Description of Approach and Project Procedures

The Doctor of Nursing Practice (DNP) student has proposed the quality improvement doctoral project as well as the educational intervention to the Executive Director (ED) at the clinical site. The student has obtained a letter of support from the Executive Director, who approved and endorsed the quality improvement doctoral project. Institutional Review Board (IRB) approval has also been secured, and the project is now ready to enter the implementation phase. The DNP student informed the ED and the project preceptor of the subsequent steps to be undertaken. According to the director, the staff's shifts were from 7 am to 3 pm and 3 pm to 11 pm, with five staff members on duty throughout the night. Consequently, it was necessary to conduct two PowerPoint presentation sessions: one for the morning shift and another for the

evening shift. This approach ensured that all staff members received the necessary training and information.

To initiate the recruitment process, the DNP student requested a list of all the facility's clinical staff from the ED. On July 2nd, approximately three weeks before the commencement of the study, all staff individually received an invitation letter with an attached recruitment letter to participate in the project. This recruitment letter detailing the study process included the date and time of the study. The letter was also posted at the setting. A follow-up reminder was sent one week prior to the implementation.

The DNP student had created a folder to manage all project-related documents, including the consent form, demographic survey, pretest, and posttest questionnaires. On the study day, participants received the consent form, demographic survey, and pretest questionnaire in person. After the educational intervention, they received the post-test questionnaire. The consent form outlined the study's objectives, procedures, and the anonymous nature of participation, which was without compensation. Participants were informed that completing the study would enhance the staff's understanding of benzodiazepine use and the potential risk for falls in older adults.

The reduction of falls educational intervention encompassed the following:
On the day of the study, participants engaged in a classroom-style educational session where they completed a pre-test survey individually, which took approximately 15 minutes. The data collected from the pre-test was analyzed to identify specific knowledge disparities among the participants. The test was followed by a targeted 20 to 30-minute PowerPoint presentation.

The educational sessions included the following important areas to increase staff awareness and reduce the risk of adverse patient outcomes: Participants were first informed about benzodiazepines, their types, their purpose, and how they work. The sessions then delved into other risk factors associated with benzodiazepine use in elderly people, including dementia,

falls, and dependence. Efforts were made to explain how benzodiazepines increase fall risk by presenting the side effects that contribute to this.

Further, the sessions highlighted how the staff assisted in the prevention of falls associated with benzodiazepine use. The CNAs and nurses were trained to identify and mitigate benzodiazepine-related risks, including prescription, monitoring patients' responses, and reporting any side effects experienced by the patients. To enhance patient safety, a more detailed system for identifying and documenting falls related to benzodiazepine use was developed. The training was directed toward these areas to ensure that CNAs and HHAs gained the necessary knowledge and skills to prevent falls and promote residents' well-being.

This presentation was utilized to provide the staff with a comprehensive understanding of benzodiazepine medications and their benefits while emphasizing the associated risks, particularly the risk of falls. The educational materials emphasized the importance of reducing the number of falls related to benzodiazepine use in older adults. No data was extracted from medical records; data collection was confined to the pretest-posttest questionnaires. Following the educational session, participants were asked to complete an identical post-test survey, also estimated to take 15 minutes. The post-test used the same instrument as the pre-intervention assessment. The purpose of this process was to define the knowledge deficit and evaluate the change in confidence levels after the educational process. The outcomes enabled the assessment of the effectiveness of the intervention and the achievement of the study objectives.

The DNP student made his email available for any issues that arose before or during the project's implementation. Since stakeholder support is an influential factor in the effective implementation of quality improvement (Moran, Burson & Conrad, 2020), the DNP student involved and updated the stakeholders throughout the project. He was also present on the project day to assist the participants and answer their questions.

Plan-Do-Study-Act (PDSA) model

The Plan-Do-Study-Act (PDSA) model is an iterative approach used for quality improvement projects, allowing organizations to test small changes and refine processes based on outcomes.

This initiative aimed to reduce falls in older adults by increasing clinical staff awareness of benzodiazepine risks. In the planning phase, invitation letters were sent to clinical staff three weeks before the study, with a reminder one week prior. Materials, including consent forms and surveys, were prepared, and the educational content covered benzodiazepine types, their risks, and fall prevention strategies.

During the Do phase, participants completed a pre-test to assess their knowledge before attending a 20- to 30-minute presentation on benzodiazepine dangers and fall prevention. They then filled out a post-test to measure knowledge improvement.

In the Study phase, analysis of the pre-and post-test data revealed significant improvements in staff understanding and confidence regarding benzodiazepine-related fall risks.

Finally, the Act phase involved reviewing findings to guide future actions. Feedback was utilized to enhance the educational content, and results were shared with stakeholders. Recommendations included repeating the intervention for new staff, monitoring falls related to benzodiazepines, and educating residents' families.

Protection of Human Subjects

The project went through a review procedure of the Institutional Review Board (IRB) at Florida International University (FIU) before its commencement at the facility, and IRB approval was obtained. The research process was explained to participants, including the purpose, procedures, potential risks, benefits, and their rights as research participants through informed consent. The Informed Consent Form was reviewed individually with each participant or their legally authorized representative. Ample time was provided for them to ask questions and make an informed decision regarding their participation.

Data Collection

The following data was collected throughout the project:

Demographic data

The staff's age and gender were documented using a standardized demographic data form.

Pre- and post-intervention assessments

A questionnaire developed for the evaluation of participants' knowledge about fall risks related to benzodiazepine use before and after the educational session was used. The questionnaire estimated the knowledge associated with benzodiazepine use.

Fall incident data.

Baseline data on falls that occurred when patients started taking benzodiazepines were collected from the facility's incident reports and medical records for the two months preceding the educational intervention. Post-intervention fall incident data were collected for two months following the completion of the intervention.

Data was collected using the pre-test/post-test survey form attached. No identifiable private information was collected. Demographic data, including gender, age, ethnicity, and title, was obtained as part of the survey. Additionally, the pre-test/post-test survey was used to gather data related to participants' knowledge about falls associated with benzodiazepine use in older adults.

Data Management and Analysis Plan

The collected data was stored securely on a password-protected electronic database accessible only to authorized members of the project team. Participant confidentiality was maintained by assigning unique identifiers to each participant, and all data was de-identified before analysis. Data coding and entry were performed by the project author, following standardized procedures to ensure data quality and accuracy.

Statistical analysis was conducted using appropriate software. Descriptive statistics (e.g., means, standard deviations, frequencies, percentages) were used to summarize demographic and baseline data. For fall incident data, the number of falls among patients aged 65 and older after they started taking benzodiazepines and after the intervention were compared using appropriate

statistical tests to evaluate the effectiveness of the intervention in reducing falls. Incidence rate ratios and corresponding confidence intervals were calculated to quantify the change in fall rates.

Results

The results section for this quality improvement project aimed to analyze, present, and summarize the information collected through surveys. Seventeen participants voluntarily participated in the entire project. The participants completed all the questionnaires, including the demographic, pre- and post-intervention assessments, and the fall incident questionnaires.

Staff Demographic Profile Analysis

The study analyzed the demographic characteristics of 17 participants. The findings revealed that the majority of the participants were females, accounting for 95%, whereas their male counterparts accounted for 5%. The participants were mostly aged 25-59 (71%), indicating an experienced workforce. Most participants (76%) were Certified Nursing Assistants (CNAs) or Home Health Aides (HHAs), with the remainder being Licensed Practical Nurses (LPNs). Ethnic background distribution showed that most participants (82%) identified as African American, with the remaining 18% identifying as Caucasian. This could be influenced by local population demographics or hiring practices. Table 1 below illustrates the demographic profile of the participants who participated in the quality improvement project.

Table 1: Staff Demographic Profile Analysis

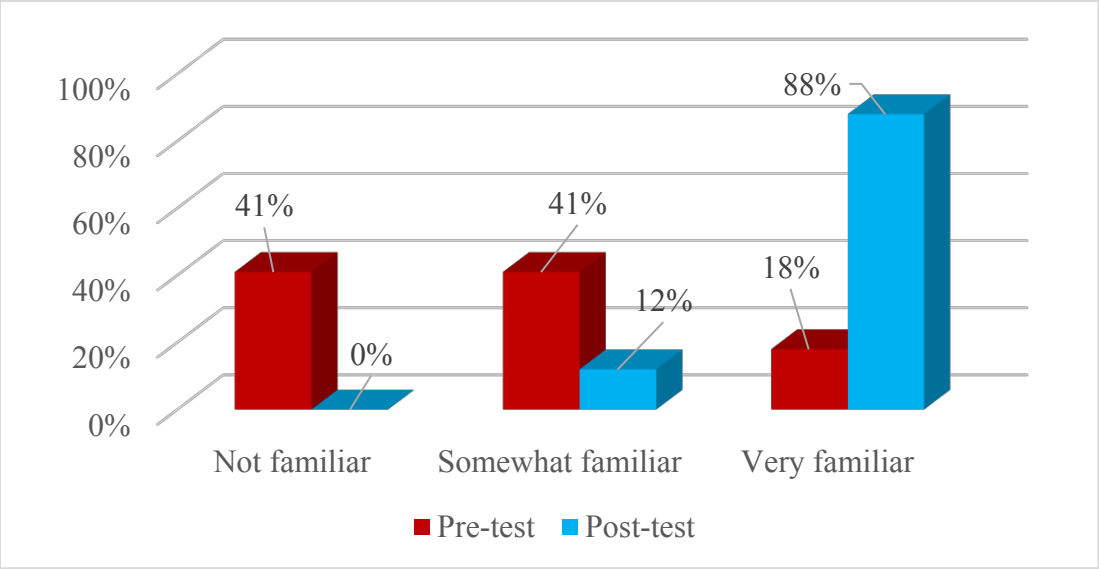
		Number(n)	**Percentage**
Gender	Male	1	5%
	Female	16	95%
Age (Years)	18-24	5	29%

	25-59	12	71%
Position/Title	Certified Nursing Assistant (CNA) Home Health Aide (HHA)	13	76%
	Licensed Practical Nurse (LPN)	4	24%
Ethnicity	African Americans	14	82%
	Caucasians	3	18%

Familiarity with benzodiazepines and their uses

The data on the familiarization by the participants with the benzodiazepines and their uses before and after the intervention was analyzed and presented. The variable familiarity was measured on a Likert Scale. The Figure 1 chart depicts that before the intervention, a good percentage, accounting for 59%, were somewhat familiar or familiar with benzodiazepines and their uses. In contrast, 41% were not familiar. In comparison, after the intervention, all the participants were somewhat familiar or familiar with the benzodiazepines and their uses.

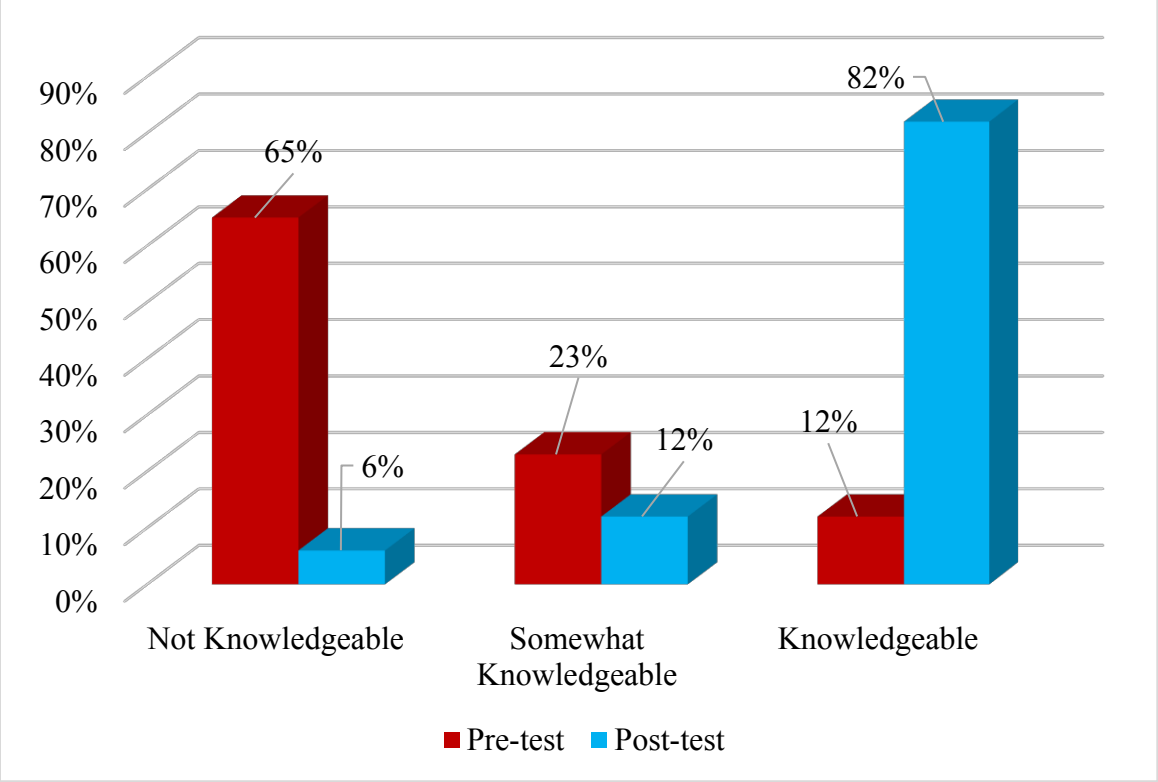
Figure 1: Familiarity with benzodiazepines and their uses



Knowledge about potential risks and side effects associated with benzodiazepine use

The quality improvement project sought to assess the participant's knowledge about potential risks and side effects associated with benzodiazepine usage. Figure 2 reveals that before the intervention, 35% of the participants were somewhat knowledgeable or knowledgeable about the potential risks and side effects associated with benzodiazepine usage. In comparison, a higher percentage of 65% were not knowledgeable. On the other hand, after the intervention, the majority, accounting for 94% of the participants, were somewhat knowledgeable or knowledgeable, while 6% were not knowledgeable. This shows that there is a jump from 35% to 94% which represent an improvement of 59%.

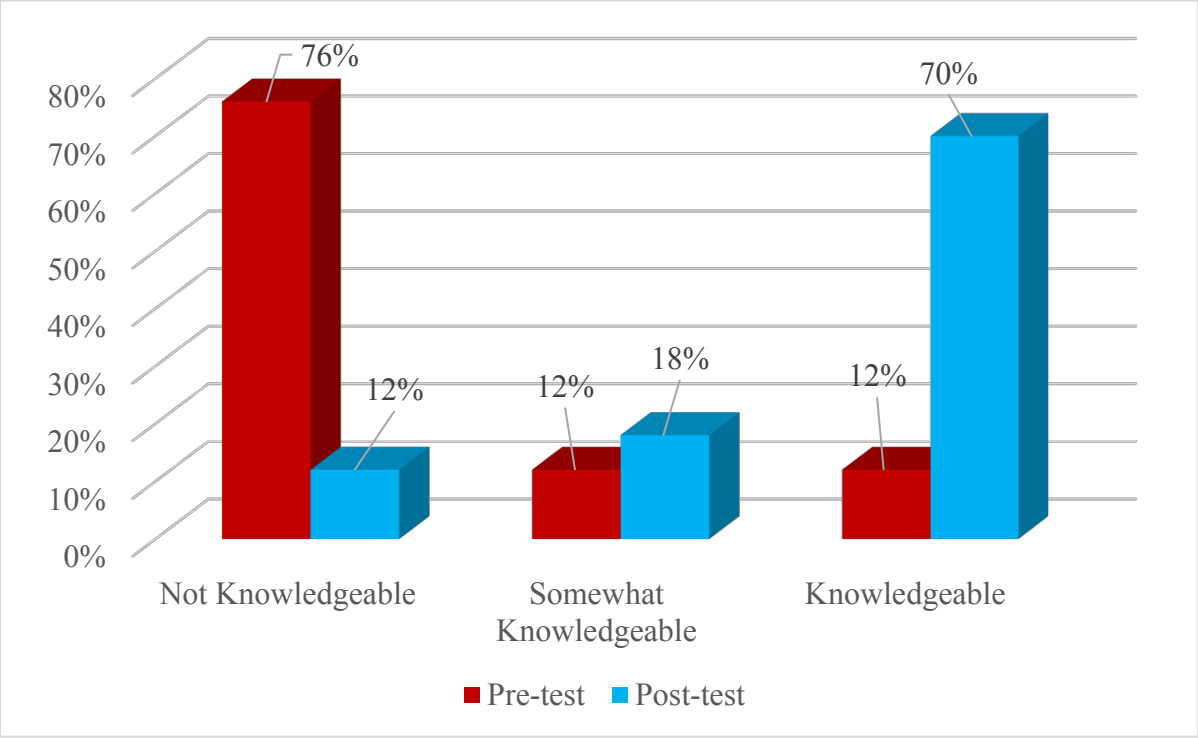
Figure 2: Knowledge of potential risks and side effects associated with benzodiazepine use



Knowledge about staff role in fall prevention for older adults who are taking benzodiazepines.

Figure 3 shows that before the intervention, 24% of the participants were somewhat knowledgeable or knowledgeable concerning the staff role in fall prevention for older adults who are taking benzodiazepines, whereas 76% were not knowledgeable. In contrast, after the intervention, 88% of the participants were somewhat knowledgeable or knowledgeable about the staff role in fall prevention for older adults who are taking benzodiazepines, while 12% were not knowledgeable. The findings reveal that there was an increase in the knowledge after the intervention.

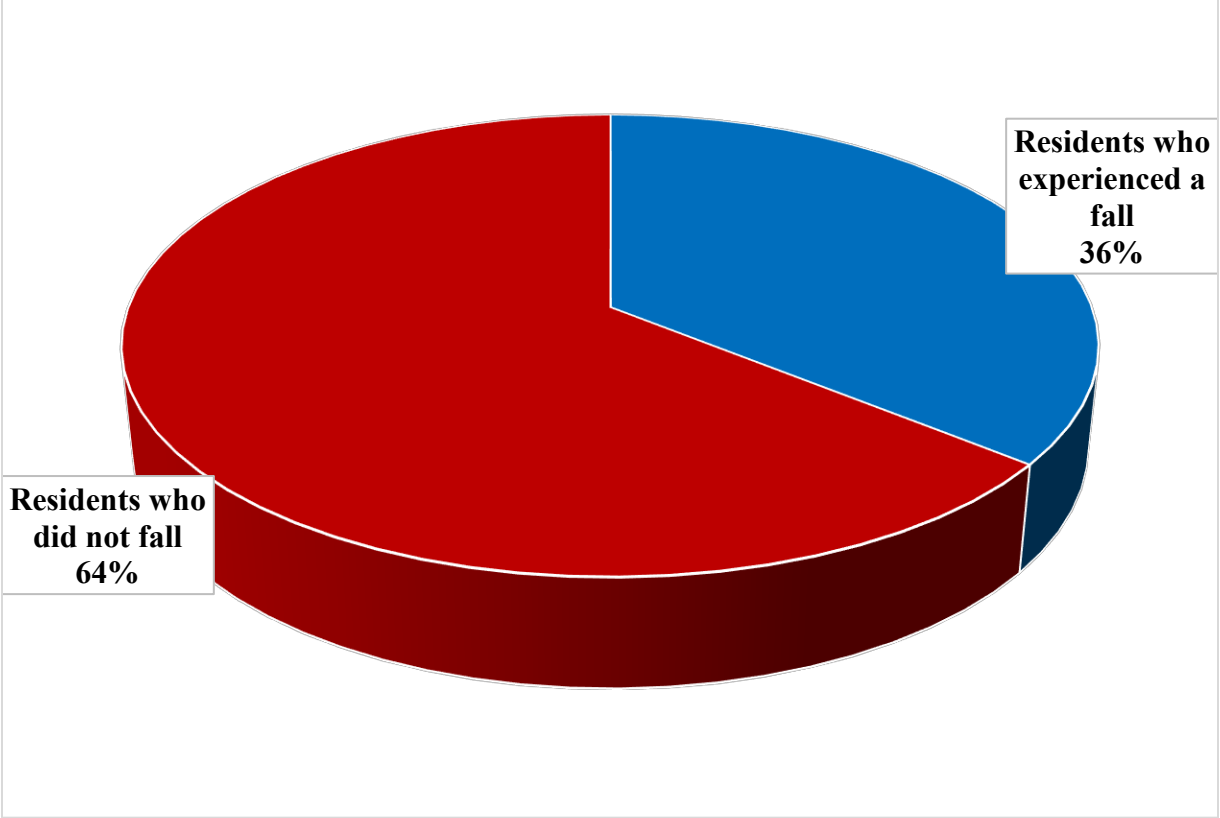
Figure 3: Knowledge about staff role in fall prevention for older adults who are taking benzodiazepines.



Falls incidents in a facility data 2 months before the intervention.

The chart in Figure 4 illustrates the fall incidents in the facility from August 1st to September 30th, 2024. It shows that 36% (24 out of 67 residents) experienced a fall, while 64% (43 residents) did not have any falls during this period.

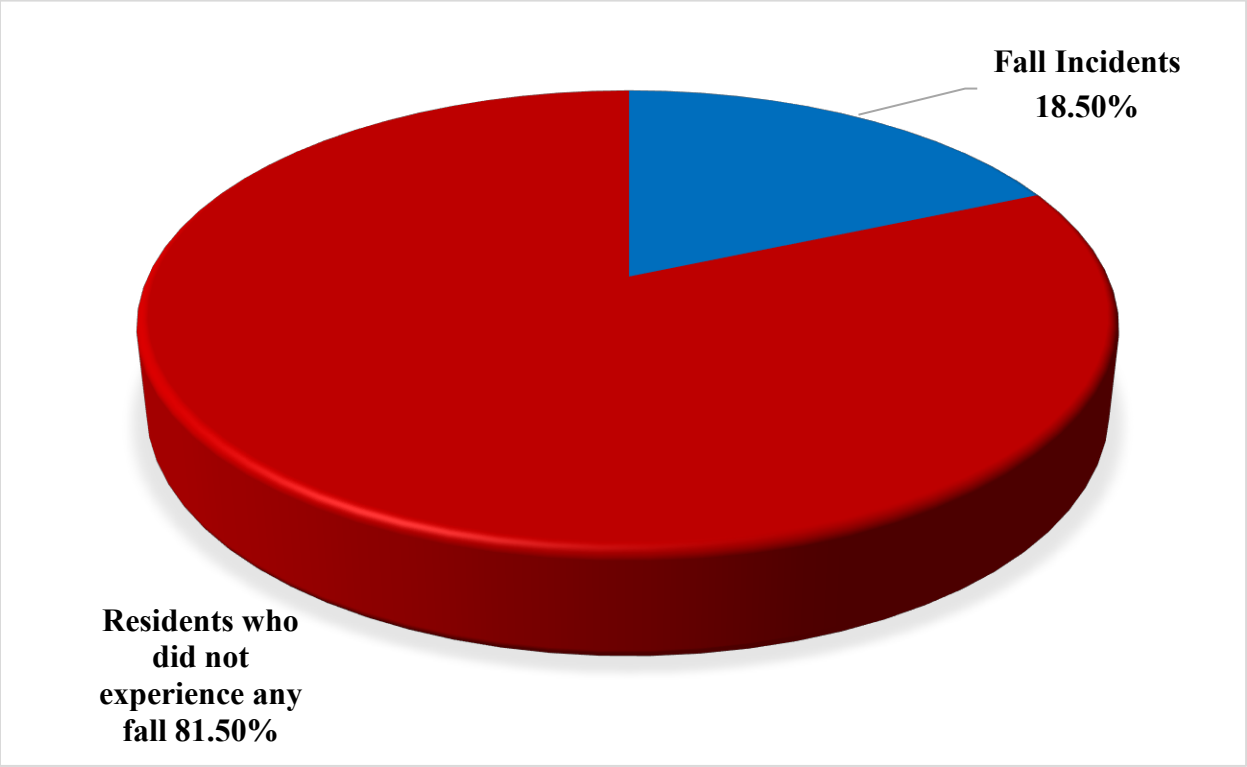
Figure 4: Falls incidence data 2 months before the intervention.



Falls incidents in a facility data 2 months after the intervention.

The following pie chart illustrates that out of 65 residents, only 12, representing 18.5%, experienced a fall during the two-month period following the intervention. In contrast, 81.5% (53 residents) did not experience any falls. This distribution suggests that the majority of residents remained fall-free, indicating a potentially positive impact of the intervention in reducing fall incidents.

Figure 5: Falls incidence data 2 months after the intervention.



Discussion

The quality improvement project aimed to enhance awareness and prevention efforts among the 17 participants involved in reducing the number of falls and consequently increasing residents' safety. The findings revealed that from the demographic analysis, a significant gender imbalance was evident, with the majority of them females (95%). This reflects the gender composition commonly found in healthcare settings, particularly in roles like Certified Nursing Assistants and Home Health Aides, who constituted 76% of the participants. Additionally, a large proportion of the participants were African American (82%) and aged between 25-59 years (71%), indicating that most of the workforce in the facility are relatively experienced professionals.

The intervention implemented was effective in increasing the participants' familiarity with benzodiazepines and their uses from 59% to 100%. This highlights the success of the educational intervention in ensuring that all staff were well-informed about this medication. Furthermore, knowledge about the potential risks and side effects of benzodiazepines significantly improved post-intervention, with 94% of the participants becoming knowledgeable, compared to 35% before. However, it is essential to note that despite this progress, 6% of the participants needed to be made aware of the associated risks, underscoring the need for ongoing training and awareness efforts.

Additionally, the study found that there was an improvement in the staff knowledge concerning their role in preventing falls among older adults taking benzodiazepines. Before the intervention, only 24% were knowledgeable in this area, but this increased to 88% post-intervention. This outcome is critical because fall prevention is a vital aspect of care for older adults, especially those on medications like benzodiazepines, which can increase the risk of falls due to their sedative effects.

Finally, the analysis of fall incidents in the facility two months before the intervention showed that 36% of residents had experienced falls. Following the post-intervention, out of 65 residents, only 12, representing 18.5%, experienced a fall during the two-month period, which shows a positive impact of the intervention in reducing fall incidents.

In conclusion, this quality improvement project successfully increased staff knowledge about benzodiazepines, their risks, and the role of staff in fall prevention. The intervention was particularly effective in enhancing familiarity with benzodiazepines and improving knowledge about fall prevention strategies. Although a tiny proportion of staff still needed full knowledge post-intervention, the overall increase in awareness is promising. Continued education and

monitoring of fall incidents will be crucial in sustaining these cs and ensuring better outcomes for older adults in the facility.

Project Limitations

One of the key limitations was the availability of participants, as their shifts run from 7:00 AM to 3:00 PM and from 3:00 PM to 11:00 PM. As a result, it was necessary to conduct two separate presentation sessions: one for the morning shift and another for the evening shift. While this allowed for larger participation, it introduced inconsistency in the experience because the timing of the sessions and the level of fatigue of the staff likely varied between shifts.

The timing of the sessions was another significant limitation. The educational presentation was conducted either near the end of the participants' shifts or during their break time. This might have affected their focus as they might be feeling tired and ready to go home. Therefore, although the progress level is satisfactory, participants might have rushed through the questions leading to less accurate responses.

A third limitation was the relatively small sample size, with only 17 participants attending the sessions. The findings may not be widely applicable due to the small sample size at the facility. A larger sample would offer a more thorough evaluation of the intervention's effectiveness for healthcare workers in similar facilities. However, for this project, the sample can still be considered representative of the specific facility.

Another limitation involves the integrity of the responses to the questionnaires. While participants were not closely monitored during the completion of the questionnaires, there is a possibility they could have sought external help or looked up answers online. However, this seems unlikely as the participants were seated apart from each other, and there was no direct incentive to cheat. The authenticity of the responses could be in doubt due to the lack of close supervision.

Another limitation is that participants may feel more tired and have trouble concentrating, especially during the evening shift. Healthcare staff, especially those in assisted living facilities, often have demanding roles that can lead to physical and mental fatigue by the end of their shifts. This exhaustion might have contributed to diminished focus during the presentation, thereby affecting their comprehension and retention of the material presented.

The duration of the assessment post-presentation may also have been a limitation. Immediate post-session evaluations, while useful, might not fully capture the long-term retention or practical application of the information. It's worth mentioning that conducting follow-up assessments days or weeks after an educational intervention could provide a better understanding of its long-term impact. Without these longitudinal assessments, we may overlook how well the information was absorbed and applied.

The last limitation of the project was the limited post-implementation data available for analysis. Although I was able to obtain information on the number of falls registered three months before the educational presentation, I could only collect data on falls for two months (October and November) following its implementation. This restriction was due to time constraints, as I needed to present my project in December. As a result, the analysis may not fully capture the long-term impact of the educational presentation on fall prevention.

Implications for Practice

The next steps for this Quality Improvement (QI) will center on evaluating the effectiveness of the educational intervention by comparing pre- and post-intervention fall rates and knowledge assessments. Furthermore, regular training sessions can help staff stay updated on fall prevention practices. To further support the intervention, future programs should include educating patients and their families on fall prevention efforts at home.

To sustain the educational intervention, the facility will standardize fall-risk assessments specific to benzodiazepine use and integrate these into patient care protocols. Motivating employees and providing useful resources will keep them engaged and invested in fall prevention. Regular training for new hires and having staff champions lead these efforts will also help build a strong, ongoing commitment to fall prevention at the facility.

This educational intervention supports Advanced Practice Nurses (APNs) in taking active roles in fall prevention, including assessments and medication management. APNs can also assume the responsibility of staff education and create scenario-focused training sessions that allow LPNs, CNAs, and HHAs to practice identifying and mitigating fall risks. In terms of policy level, APNs can support older patients and may also endorse changes to prescribing patterns by suggesting Policies that could promote deprescribing practices and safer alternatives to benzodiazepines, particularly in high-risk populations.

The advantages and disadvantages of the project will be evaluated and issues such as participants' compliance, number of participants, and other factors that may affect the outcome of the findings will be highlighted. The talk will be based on the problems faced during the process of project implementation and the difficulties met in integrating the intervention into ordinary clinical practice along with the steps taken to manage the issues.

Conclusion

Benzodiazepine use among older adults presents a significant public health concern due to the increased risk of falls, cognitive impairment, and other adverse effects. Despite guidelines advising against long-term use, a substantial portion of older adults continue to use these medications, putting their safety at risk. This project aims to address this issue through targeted staff education at a private assisted living facility in West Palm Beach, FL, emphasizing the risks associated with benzodiazepines, particularly the risk of falls. By educating staff on proper

medication management and fall risk assessments, the project seeks to enhance patient safety, reduce falls, and improve the overall quality of care, ultimately contributing to the well-being of older adults in assisted living facilities.

The proposed DNP project aims to address the critical issue of benzodiazepine-related falls among older adults by implementing a targeted educational intervention for the staff at the facility, which includes CNAs, HHAs, and LPNs. By focusing on enhancing staff knowledge and awareness of the risks associated with benzodiazepine use, this initiative seeks to reduce the incidence of falls and improve the safety and quality of care for residents. The project's SMART goals ensure a structured approach, with measurable outcomes that will assess both the effectiveness of the intervention and its impact on staff competency and resident safety.

Ultimately, this intervention not only aligns with the facility's commitment to resident care and safety but also has the potential to serve as a model for similar facilities facing comparable challenges. Through education and empowerment of the care team, the project aspires to foster a safer environment, enhance the well-being of older adults, and contribute to the overall quality of geriatric care.

After its implementation, this quality improvement project successfully achieved its goal of enhancing staff knowledge about benzodiazepine use and its associated fall risks for older adults. The educational intervention significantly increased staff awareness, improving familiarity with benzodiazepines and their side effects, as well as the critical role staff play in fall prevention. The reduction in fall incidents, from 36% to 18.5%, suggests that the intervention had a positive impact on resident safety. While there is still room for improvement in staff knowledge, the project demonstrates the effectiveness of targeted educational initiatives in reducing fall risks and enhancing the quality of care in assisted living facilities. Ongoing education and continued monitoring will be essential to maintaining these positive outcomes and ensuring the long-term safety of residents.

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Appendix A: IRB Approval letter

FIU | FLORIDA INTERNATIONAL UNIVERSITY

Office of Research Integrity
Research Compliance, MARC 414

MEMORANDUM

To: Dr. Carmen V. Framil **CC:** Vladymir Gratia

From: Maria Melendez-Vargas, MIBA, IRB Coordinator

Date: July 19, 2024

Protocol Title: "Reducing Fall Associated with Benzodiazepine Use in Older Adults: A Quality Improvement Project"

The Florida International University Office of Research Integrity has reviewed your research study for the use of human subjects and deemed it Exempt via the **Exempt Review** process.

IRB Protocol Exemption #: IRB-24-0354 **IRB Exemption Date:** 07/19/24
TOPAZ Reference #: 114669

As a requirement of IRB Exemption, you are required to:

1) Submit an IRB Exempt Amendment Form for all proposed additions or changes in the procedures involving human subjects. All additions and changes must be reviewed and approved prior to implementation.
2) Promptly submit an IRB Exempt Event Report Form for every serious or unusual or unanticipated adverse event, problems with the rights or welfare of the human subjects, and/or deviations from the approved protocol.
3) Submit an IRB Exempt Project Completion Report Form when the study is finished or discontinued.

Special Conditions: N/A

For further information, you may visit the IRB website at http://research.fiu.edu/irb.

MMV/em

Appendix B: letter of support

PACIFICA
SENIOR LIVING
PALM BEACH
Memory Care

Date: 06/05/2024

Dr. Carmen Victoria Framil,
Clinical Associate Professor
Nicole Wertheim College of Nursing & Health Sciences
Florida International University

Dear Dr. Framil:

Thank you for inviting Pacifica Senior Living Palm Beach to participate in the DNP Project of Vladymir Gratia. I understand this student will be conducting this project as part of the requirements for the Doctor of Nursing Practice program at Florida International University (FIU). After reviewing the project's proposal titled "Reducing Falls Associated with Benzodiazepine Use in Older Adults.: A quality improvement project." I have warranted him permission to conduct the project in this company.

We understand that the project will be developed in our setting and will occur in one session, and probably be implemented afterward. We are also aware of our staff participation in supporting the student to complete this project, including granting the student access to our facilities, giving consent, delivering the pre-test questionnaire, provide the educational intervention and the post-test questionnaire to the recruited participants. We will provide a peaceful and safe environment to safeguard our participants' privacy and an adequate area to conduct the educational activity.

This project intends to evaluate if a structured educational program targeting the staff will reduce the number of falls associated with benzodiazepine use. Before implementing this project, the Florida International University Institutional Review Board will evaluate and approve the procedures to conduct the project. Evidence suggests that teaching the staff about the potential fall risk associated with the utilization of benzodiazepine should be ongoing to ensure long-term sustainability and improve practice. Successful training to enhance the staff's understanding of benzodiazepine use and the potential risk for falls in older adults will improve our patients' healthcare indicators and improve their quality of life.

The educational intervention will be done at the facility in a classroom-style educational session expected to last approximately 20-30 minutes. The student will provide the educational materials to each participant. Any data collected by Vladymir Gratia will be kept confidential and stored in a password-protected computer.

We expect that Vladymir Gratia will not interfere with the normal office performance. Furthermore, Mr. Gratia will behave professionally and follow the office standards of care. As the Executive Director of Pacifica Senior Living Palm Beach, I support our staff participation in this project and look forward to working with you.

Sincerely,

Saber Dhif

Saber Dhif
Executive Director
Pacifica Senior Living Palm Beach

4760 Jog Road • Greenacres, FL 33467 • PHONE (561) 434-0434
Assisted Living Facility #9837 FAX (561) 434-4431 • pacificaseniorliving.com

Appendix C: Letter of recruitment

RECRUITMENT LETTER

Recruitment letter for an educational intervention on reducing falls associated with Benzodiazepine Use in Older Adults. A Quality Improvement Project.

Dear Staff,

My name is Vladymir Gratia, and I am a student in the Graduate Nursing Department at Florida International University. I am writing to invite you to participate in my quality improvement project. The goal of this project is to implement an educational intervention to improve knowledge on how to decrease the number of falls related to benzodiazepine use. You are eligible to participate in this project because you are a Staff member helping residents at this facility. I am contacting you with the permission of the Executive Director, Mr. Saber Dhif.

If you decide to participate in this project, you will be asked to complete and sign a consent form for participation. Next, you will complete a pre-test questionnaire, which is expected to take approximately 10-15 minutes. You will then engage in a classroom-style educational session expected to last approximately 20 minutes where we will talk about benzodiazepine use and the potential risk for fall associated with this class of medication. Afterward, you will be asked to watch an educational presentation online of about 20 minutes on

ensuring that proper care is given and that patients are monitored for any falls. After watching the video, you will be asked to complete the post-test questionnaire, which is expected to take approximately 10-15 minutes. The above steps, consent, pretest-posttest participation, and intervention will be done at the facility. No compensation will be provided.

As a reminder, this training is voluntary. You can choose to be in the study or not. If you would like to participate or have any questions about the study, please email or contact me at vgrat001@fiu.edu or 321-261-2009.

Thank you very much for your anticipated participation.

Sincerely,

Vladymir Gratia

Appendix D: Letter of Consent

CONSENT TO PARTICIPATE IN A QUALITY IMPROVEMENT PROJECT

"Educational intervention to reduce Falls Associated with Benzodiazepine Use in Older Adults."

PURPOSE OF THE PROJECT

You are being asked to be in a quality improvement project. The goal of this project is to reduce the number of falls associated with the use of benzodiazepines in older adults by implementing an educational program to train the staff on benzodiazepine use and the potential risk for falls in older adults.

NUMBER OF PROJECT PARTICIPANTS

If you decide to be in this project, you will be one of thirteen people participating in this research project.

DURATION OF THE PROJECT

Your participation will require about 60 minutes of your time in the first session and 20 minutes in the second session which will occur four weeks after your first session.

PROCEDURES

If you agree to be in the project, we will ask you to do the following things:

1. At your first session, you will complete a demographic questionnaire, which includes general information such as age, gender, position in practice; and a pre-test on benzodiazepine use and fall risk.
2. You will then be asked to follow a 10-minute PowerPoint presentation and watch a brief video for the educational intervention to enhance your understanding of benzodiazepine use and the potential risk for falls in older adults.
3. Finally, you will be asked to complete the post-test questionnaire.

The above steps, consent, pretest-posttest participation, and intervention will be done at the facility.

RISKS AND/OR DISCOMFORTS

There are no foreseeable risks with you for participating in this project.

BENEFITS

The following benefits may be associated with your participation in this project: an increase in knowledge to effectively identify the signs and symptoms associated with falls resulting from the use of benzodiazepines. By equipping the staff with the necessary knowledge and skills, we aim to reduce the incidence of falls related to benzodiazepine use within the older adult community, consequently contributing to the amelioration of the well-being and the quality of living of the older people who are residing at this senior living facility.

ALTERNATIVES

There are no known alternatives available to you other than not taking part in this project. However, if you would like to receive the educational material given to the participants in this project, it will be provided to you at no cost.

CONFIDENTIALITY

The records of this project will be kept private and will be protected to the fullest extent provided by law. If, in any sort of report, we might publish, we will not include any information that will make it possible to identify you as a participant. Records will be stored securely, and only the project team will have access to the records.

COMPENSATION & COSTS

There is no cost or payment to you for receiving the health education and participating in this project.

RIGHT TO DECLINE OR WITHDRAW

Your participation in this project is voluntary. You are free to participate in the project or withdraw your consent at any time during the project. Your withdrawal or lack of participation will not affect any benefits to which you are otherwise entitled. The investigators reserve the right to remove you without your consent at such time that they feel it is in their best interest.

RESEARCHER CONTACT INFORMATION

If you have any questions about the purpose, procedures, or any other issues relating to this research project, you may contact Vladymir Gratia at 321-261-2009, vgrat001@fiu.edu or Dr. Maritza C. Alencar at 305-919-4420, mcardena@fiu.edu

IRB CONTACT INFORMATION

If you would like to talk with someone about your rights to be a subject in this project or about ethical issues with this project, you may contact the FIU Office of Research Integrity by phone at 305-348-2494 or by email at ori@fiu.edu.

PARTICIPANT AGREEMENT

I have read the information in this consent form and agree to participate in this project. I have had a chance to ask any questions I have about this project, and they have been answered for me. I understand that I will be given a copy of this form for my records.

_____ _____

Signature of Participant Date

_____

Printed Name of Participant

_____ _____

Signature of Person Obtaining Consent Date

Appendix E: Pretest-posttest questionnaire

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PRETEST-POSTTEST questionnaire

This questionnaire is a vital part of a DNP quality improvement project aiming to reduce the number of falls associated with the use of benzodiazepines in older adults.

Instructions:

1. Please do not write your name or other personal information on this questionnaire.

2. **Your answers are anonymous and will be kept confidential.**

These questions will help to assess your knowledge, perceptions, and current clinical practices related to benzodiazepines, particularly their probability of causing falls.

Demographic:

Gender: Female _____ Male _____

Age: _____

Ethnicity: _____

Position: _____

Questionnaire

Please, answer to the best of your knowledge. The questions are in multiple-choice format.

1. How familiar are you with benzodiazepines and their uses?

    a) Very familiar

    b) Somewhat familiar

    c) Not familiar

2. When a resident is prescribed benzodiazepines, do you receive specific training on monitoring their side effects?

    a) Yes, always.

    b) Yes, sometimes.

    c) No, never.

3. Which of the following is a common benzodiazepine?

    a) Ibuprofen

    b) Diazepam

    c) Paracetamol

    d) Aspirin

4. Benzodiazepines are primarily prescribed for:

    a) Pain relief

    b) Reducing anxiety

    c) Lowering blood pressure

    d) Treating infections

5. What should CNAs be educated about regarding benzodiazepines prescribed to older adults?

a) Their colors and shapes

b) Their average wholesale price.

c) Their common uses and potential side effects

d) Their manufacturer details.

6. Why is monitoring and reporting important for CNAs regarding benzodiazepine use in older adults?

a) To track residents' exercise routines

b) To establish resident music preferences

c) To monitor for signs of adverse events and report observed side effects.

d) To organize social events for residents

7. What adverse events are associated with benzodiazepine use?

a) Drowsiness and dizziness

b) Memory impairment

c) Increased risk of falls

d) confusion

e) All of the above

8. What are some potential risks associated with long-term benzodiazepine use?

a) Tolerance and dependence

b) Cognitive impairment

c) Falls and fractures in the elderly.

d) All of the above

9. Do you know that benzodiazepines can increase the risk of falls in elderly patients?

a) Yes

b) No

10. Which of the following factors contribute to the risk of falls among older adults in assisted living facilities?

a) Muscle weakness

b) Environmental hazards

c) Vision impairments

d) All of the above

11. What role can staff play in fall prevention for older adults in assisted living facilities?

a) Encouraging residents to report any concerns about their mobility and balance

b) Assisting with regular exercise and mobility training

c) Notifying the facility staff about any observed hazards or changes in residents' conditions

d) All of the above

12. What should CNAs be aware of when assisting patients who are taking benzodiazepines?

a) Encouraging alcohol consumption

b) Monitoring for signs of drowsiness and gait imbalance.

c) Suggesting herbal remedies as alternatives

d) Ignoring potential side effects

13. What measures do you take if you notice a resident at risk of falling after taking benzodiazepines?

a) Report to a supervisor
b) Increase monitoring.
c) Modify the resident's environment.
d) All of the above

14. In your opinion, how adequately are fall risks associated with benzodiazepines addressed in your facility's training programs?

a) Very adequately
b) Adequately
c) Somewhat adequately
d) Not adequately

15. What do you think is the most important factor in preventing falls in residents taking benzodiazepines?

a) Proper supervision
b) Environmental modifications
c) Medication review
d) Resident education

16. Do you think reducing the use of benzodiazepines would decrease the incidence of falls in your facility?

a) Yes
b) No

c) Not sure

17. How do you document incidents of falls in residents taking benzodiazepines?

a) Electronic health records

b) Paper charts

c) Verbal reports only

d) Do not document.

18. Which of the following would improve your ability to manage fall risks associated with benzodiazepines?

a) More detailed training

b) Better communication between staff

c) More staff

d) Improved monitoring equipment

19. What is your facility's protocol for managing falls in residents taking benzodiazepines?

a) Immediate medical evaluation

b) Increased supervision

c) Medication review

d) All of the above

20. Do you feel you need more training on the effects of benzodiazepines and fall prevention?

a) Yes

b) No

c) Not sure