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A Quality Improvement Initiative to Decrease Fall Risk in Community Dwelling Elderly

Michele Shearer

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Michele S. Shearer MSN, RN, CNS, AGNP-C

School of Nursing, Duquesne University

Dr. Pamela Spigelmyer PhD, RN, CNS, CSN
Faculty Mentor

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Abstract

Falls are a health concern for the elderly and are the leading cause of fatal and non-fatal fall injuries in this population (Burns & Lee, 2016). Meijers, et al. (2012) found that one in three community dwelling elderly will experience at least one fall per year with an even higher rate in adults greater than 80 years old. Numbers of falls are expected to increase as this population ages. This increase in falls and their consequences will produce an enormous economic burden on the United States health care system (Burns & Lee, 2016). The purpose of this program was to engage community dwelling elderly in a fall risk reduction program to decrease their fall risk. This program was implemented in an independent living facility. Eighteen residents participated in the "Steady on Your Feet" program. Using the Stop Elderly Accidents Death and Injury (STEADI) algorithm (Centers for Disease Control (CDC), 2019), "Stay Independent" (CDC, 2017) fall risk assessment tool, and the development of an individualized action plan, residents were asked to implement their action plan interventions by the program's completion. The sample was not normally distributed; therefore, the Wilcoxon W statistical test was performed. All measurement outcomes were achieved. Analysis of the fall risk reduction program data pointed toward decreasing fall risk and the data reflected that the intervention was related to the results. This provides confirmation that an evidenced-based multifactorial fall risk reduction program with an individualized action plan supports a decrease in fall risk in community dwelling elderly.

Keywords: falls, fall prevention, community dwelling elderly, STEADI

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Falls are a major health concern in adults aged 65 and older, and are the leading cause of fatal and non-fatal injuries (Burns & Lee, 2016). It is estimated that by 2050, the United States population of adults aged 65 and older will reach 84 million (Burns & Lee, 2016). Consequently, the number of falls can be expected to increase in this population. Meijers, et al. (2012) found that one in three community dwelling elderly will experience at least one fall per year with an even higher rate in adults greater than 80 years old.

Falls have devastating consequences. Fractures, head injuries, hospitalizations, fear of future falls, decreased quality of life and loss of independence are consequences of falling. Older adults prefer to remain in their communities as opposed to living in assisted living facilities or nursing homes (Graybill et al, 2014). The study by Binette and Vasold (2019) found that 76% of older adults prefer to age in place and 77% prefer to remain in their communities. A major reason given for aging in place, reported in a study by Ahn et al., (2020), was the strong desire to live independently. Physical well-being is necessary for independence (Ahn, et al., 2020). Falls can compromise physical well-being and necessitate admittance into a skilled nursing or assisted living facility. One-fifth of the elderly pay for nursing home costs out-of-pocket. In 2009, a monthly payment for noninstitutional long term care was $928 dollars compared to $5,243 dollars for nursing home care (Office of Policy and Research, 2013). Remaining in their homes is a significant financial cost savings for the older adult.

Preventing falls in community dwelling older adults can be a significant cost savings for Medicare and Medicaid as well. In 2015, the cost burden to the health care system for non-fatal falls was $31.3 billion dollars and for fatal falls was $637.2 million dollars (Burns & Lee, 2016). The Office of Policy Development and Research (2013) states that fall prevention in community

dwelling elderly can potentially save the Centers for Medicare and Medicaid $2.6 billion dollars.

Innovative solutions to the problems of maintaining independence and dignity are necessary (Graybill et al., 2014). Nurses have a pivotal role in decreasing the risk of falling. Using evidence-based fall risk reduction programs, nurses can help the elderly identify their fall risks, and collaborate with the older adult to develop an individualized intervention plan to decrease their risk of falling.

An independent living, senior facility in North Carolina had a fall rate of 27%-33%. The Director of the facility was interested in decreasing the number of resident falls. To address this issue, the program director initiated a Quality Improvement (QI) initiative and began a literature review to determine the best practices for the development of a fall risk prevention program.

The research databases used for the literature search were PubMed, Cumulative Index of Nursing and Allied Health Literature (CINHAL), Google Scholar, ProQuest, EBSCO, and OVID. Search terms included: falls, fall prevention, community dwelling elderly, health confidence, evidenced-based fall prevention programs, multifactorial fall prevention interventions.

There are numerous risk factors which can lead to falls (Dionyssiotis, 2012). Several evidence-based programs for decreasing the risk of falls in community dwelling older adults have been identified by the National Council on Aging (NCOA) (NCOA, 2021). Although a few of those programs included education on multifactor risk factors, most of these programs had a focus on exercise (NCOA, 2021). Several studies used a single intervention and studied its effect on falls (Barnett, et al., 2003; Campbell et al., 1999; Clemson et al., 2012; Cumming et al., 1999; Harwood, et al., 2006). These studies found that single interventions such as exercise (Barnett, et

al., 2003) cataract removal (Harwood, et al., 2006), withdrawal of psychotropic medications (Campbell, et al., 1999), exercise (Clemson, et al., 2012) and Occupational Therapist home visits (Cumming, et al., 1999) were effective in decreasing falls. Other studies evaluated the effect of multifactorial interventions on fall prevention (Clemson, et al., 2004; Logan, et al., 2010; Palvanen, et al., 2014; Tinetti, et al., 1994; Yates & Dunnagan, 2001). These studies evaluated risk factors and their specific interventions' effect on decreasing falls. Risk factors studied included: balance and strength, moving safely in the home, footwear, home hazards, poor vision, medication review and management, and co-morbidities. The results of these studies found that multifactorial fall risk interventions decreased fall rate. Within the literature, one systematic review with meta-analysis (Level I/Quality A), nine randomized control trials (RCT) (Level I/Quality A), two Cochrane Databases of Systematic Review (Level I/Quality A), and two quasi-experimental (Level II/Quality B) were reviewed. This research studied multifactorial interventions effect in preventing falls in community dwelling elderly. One RCT and one quasi-experimental study found multifactorial fall prevention programs decreased fall risk (Tinetti, et. al, 1994; Yates & Dunnagan, 2001). Several studies (Clemson, et al., 2004; Gillespie, et al., 2012; Logan, et al., 2010; Lee & Yu, 2020; Mohammed et al., 2018; Palvanen, et al., 2014) found that the rate of falls decreased when multifactorial interventions were used. One Cochrane Systematic Review found that multifactorial interventions decrease fall rate and risk of falling (Gillespie, et al., 2012). A second Cochrane Systematic Review found that multifactorial fall prevention programs may reduce the fall rate and risk (Hopewell et al., 2018). Each older adult should be evaluated for risk factors and interventions implemented to prevent falls (American Geriatric Society and British Geriatric society, 2011). "Steady on Your Feet" fall risk reduction program sought to utilize evidence-based practice multifactorial interventions in a program to

decrease fall risk in community dwelling elderly. A review of the literature revealed the Stopping Elderly Accidents, Death and Injuries (STEADI) program (Stevens & Phelan, 2013), which is the CDC's fall prevention program. The STEADI (Stevens & Phelan, 2013) program was developed by using the Clinical Practice Guidelines of the American and British Geriatrics Societies (American Geriatric Society & British Geriatrics Society, 2011). STEADI (Stevens & Phelan, 2013) has an algorithm to assess multifactorial risk factors associated with increased fall risk: medications, home hazards, orthostatic hypotension, visual acuity, footwear, vitamin D deficiency, medical co-morbidities and provides interventions to decrease fall risk specific to each risk factor (American Geriatric Society & British Geriatric Society, 2011). Lohman et al. (2017) validated STEADI as tool for predicting future fall risk. Nithman and Vincenzo (2019) found STEADI particularly sensitive to predicting falls in community dwelling elderly. The STEADI (Stevens & Phelan, 2013) program was initially developed for use in primary care offices (Nithman & Vincenzo, 2019). However, research by Nithman & Vincenzo (2019) found that screening of elderly in primary care practices decreased from 79% the first year to 49% in the second year. Stevens, et al. (2017) stated that primary care physicians have not incorporated STEADI (Stevens & Phelan, 2013) into their practices. Ory and Smith (2015) recommend screening in the community to reach greater numbers of elderly and increase sustainability. After evaluation and synthesis of the literature, STEADI (Stevens & Phelan, 2013) was adopted for use in "The Steady on Your Feet" fall risk reduction program with community dwelling older adults in this QI initiative in a North Carolina facility.

Two theoretical frameworks for change drove this quality improvement (QI) project. Lewin's Theory of Change was used to guide change within the organization (Lewin, 1947). The Stages of Change Theory was used with residents when implementing the new fall

risk reduction program (Prochaska, & Velicer, 1997). The evidence-based practice model that guided this quality improvement initiative was The Iowa Model (Titler, et al., 2001).

To address the clinical problem of reducing fall risk, the following question was used. In adults aged 65 and older, will participation in a fall risk reduction program, "Steady on Your Feet", decrease fall risk self-assessment (FRSA) scores, improve health confidence scores and engage residents in implementation of individualized interventions to reduce fall risk compared to pre-program values by the end of the program?

Methods

The intervention of this quality improvement program was a fall risk reduction program called "Steady on Your Feet". The program was adapted from the STEADI (Stop Elderly Accidents, Death and Injury) (Stevens & Phelan, 2013) program. In addition to the use of STEADI (Stevens & Phelan, 2013), "Steady on Your Feet" used a written, individualized action plan to decrease fall risk. The action plan was developed by the resident in collaboration with the program director, a nurse practitioner. Residents received a notebook that contained the template for their written individualized fall risk reduction action plan, STEADI (Stevens and Phelan, 2013) educational brochures related to fall risk factors and assessments of their co-morbid conditions, vision, and footwear. The program was conducted one-on-one with the residents in their condominiums and provided time to discuss their specific risk factors and how those could lead to a fall.

Data Collection Tools

Several tools were used to collect the data. A demographic questionnaire collected information such as age, gender, educational level, number of medications prescribed, if an ambulation assistance device was prescribed/utilized and number of

falls in the last 12 months.

To measure fall risk, the “Stay Independent” fall risk self-assessment tool (CDC, 2017) was used. This tool was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and is used in the CDC’s STEADI fall prevention program. The “Stay Independent” fall risk assessment (CDC, 2017) has 12 questions all associated with a risk of falling. Each question is assigned a number based on its association with increased risk for falling. The residents read the questions and then answered yes or no. The score was calculated and if the score was equal to or greater than four, the resident was at risk for falling. The “Stay Independent” tool (CDC, 2017) was tested and found to have concurrent validity (Rubenstein et al., 2011).

To measure health care confidence, the Health Confidence Score (HCS) (Benson et al., 2019) tool was used. This tool is a four item Likert type scale. The tool has construct validity (Benson, et al., 2019). HCS measures four dimensions: knowledge about health, treatment and health literacy; self-management of perceived ability to manage health treatment and lifestyle; ability to navigate the health care system to get the help needed for treatment; shared decision making for clinical treatment decisions and how well staff understand patient needs.

To assess visual acuity, a Snellen chart was utilized to assess vision (Azzam & Ronquillo, 2020). A score of 20/40 or higher indicates visual impairment. Residents were asked if they wore bifocal glasses. Both of these conditions indicated visual deficits and puts the resident at higher risk for falls if the vision is impaired.

Postural (orthostatic) hypertension was assessed by taking the blood pressure in both the sitting and standing positions. A drop of 20mmHg systolic or 10mmHG diastolic pressure upon standing constitutes postural hypotension. Postural hypotension can cause dizziness, which puts

the older adult at a higher risk for falling.

Footwear was assessed using a checklist. Aspects of shoes that are known to contribute to falls include poor arch and heel support, lack of sturdy soles, and worn out grip on the bottom of soles (Williams, 2007). These problems with shoes cause imbalance and can cause the elderly to slip and fall.

Home Hazards were assessed with the "Check for Safety" checklist (CDC, 2017). The resident was given the checklist and asked to complete the assessment prior to the second visit. The checklist identified areas of their home that put them at risk for falls. Interventions to correct the risks were given on the checklist. "Check for Safety" (CDC, 2017) assesses stairs and steps (indoor and outdoor), floors, the kitchen, bedrooms and bathrooms for aspects that increase fall risk.

Assessment of gait/strength/balance, was performed using the 30 second Chair Stand test (CDC, 2017). This test assessed the number of chair rises within 30 seconds without the use of the arms/hands. Each chair rise equals one point. The total number of chair rises was calculated and compared to normed age-based scores. If the number of rises was below normed aged based scores, the resident was at risk for falling. If the resident used his/her arms/hands to rise from chair, the assessment was stopped, and the resident received a score of zero.

Procedure

The facility director provided the program director with a list of residents. Each resident was informed of the program and invited to participate. The facility director, staff and a "cheerleader" (a resident volunteer) promoted participation in the program and encouraged residents to attend all three visits to receive the full benefit of the program.

The program consisted of three visits. At the first visit, the program was explained and

residents had a chance to ask questions and decide if they wanted to participate. Participating residents received a "Steady on Your Feet" program notebook. Residents provided information about their age, gender, educational level, number of medications prescribed, if an ambulation device was prescribed/used and number of falls in the last 12 months. Next, residents were asked to complete the Health Confidence Score (HCS) tool (Benson, 2019) to determine their level of confidence in controlling and managing their health problems. Residents were asked to complete the Stay Independent (CDC, 2017) fall risk questionnaire to determine their level of fall risk. Each resident provided a medical history which was used to identify any co-morbid conditions they may have that contribute towards falls. Resident's medications were reviewed with the program director to determine if any medications could potentially contribute to their risk of falling. The Beers List criteria (American Geriatric Association Beers Criteria Update Panel, 2019) was used as a guideline in determining inappropriate medications for older adults that could contribute towards a fall. Baseline gait, strength and balance measurements were obtained using the Chair Stand test. Blood pressure readings were assessed to determine if postural hypotension was present. Resident footwear and vision were evaluated to see if poor fitting shoes or visual impairment was present as these could contribute to a fall. Education about the importance of exercise and Vitamin D was provided to the residents. Using the "Check for Safety" (CDC, 2017) checklist, residents were asked to assess the safety of their home environment before their next visit with program director.

At the second visit, identified risks determined at the first visit were discussed in relationship to how those risks contribute to falls. The resident was introduced to the interventions from the STEADI algorithm (CDC, 2019) and an individualized action plan in collaboration with the program director was developed from this information.

At the third visit, the residents completed the "Stay Independent" questionnaire (CDC, 2017), which asked about their risk for falling. The residents were then asked to complete the Health Confidence Score (Benson, et al., 2019). In addition, using the 30 Second Chair Stand test (CDC, 2017), the residents demonstrated their ability to rise out of a seated position to determine their risk of falling. Each resident's action plan interventions were reviewed with the resident and the resident stated if they were able to complete their interventions. Residents were asked what helped them complete the interventions or what prevented them from engaging in the interventions. Lastly, residents were provided the opportunity to ask questions about their prescribed interventions and the program.

Program Evaluation

This program's success was determined by meeting the outcomes set at the beginning of the QI initiative. These outcomes included: completion of preintervention questionnaires and surveys, involvement in recommended fall prevention initiatives, a decrease in each resident's overall fall risk assessment score by the end of the program, an improvement in HCS, and all program participants completing the program from beginning to end.

Findings

Descriptive statistical analysis was used to evaluate the program. A small sample size necessitated using the Wilcoxon W analysis (Table 1). Residents ranged in age from 75-104 with a mean age of 85. Seventy-seven percent of the residents were female and 85% of the residents lived alone. Fifty-three percent were college educated. Sixty-one percent of residents were prescribed an ambulation device by a health care provider and 54% were prescribed over four medications. Fifty-four percent indicated sustaining a fall in the previous 12 months.

One goal of the program was to encourage residents to participate in the fall risk

reduction program. Of the 18 residents participating in the program, 100% completed all pre-program surveys. This exceeded the participation goal of 25%.

Another goal of the program was to have residents assist in the development of individualized fall risk reduction interventions and use the developed interventions in their daily routines. Residents completed 25% of the interventions developed. One hundred percent of the participants collaborated with the program director in developing their fall risk reduction action plan and initiated interventions within two weeks of the designated period, surpassing the initial goal of 25%.

The third goal of the initiative was seventy-five percent attendance at all three visits of the program. Out of the 18 residents participating in the program, 14 completed all three visits. This indicates that 78% of participating residents completed all three visits and this result exceeded the measured outcome of 75% of all participating residents would complete all three visits.

Improving the HCS was another goal of the project. Residents' pre-test HCS (M=10.18, Mdn=12, SD=2.56) were analyzed with their post-test HCS (M=10.27, Mdn=11, SD=1.73) (Table 2, Figure 2). The data analysis revealed no improvement. The small effect size (ES=-0.02) revealed that the intervention had little association to the outcome (Table 1). This finding could be related to the smaller sample size. However, when individual resident scores were analyzed, 46% of the residents completing the program had improved health confidence scores. This exceeded the goal of 25%.

A major goal of the project was to decrease the older adult's risk of falling. The Stay Independent (CDC, 2017) fall risk self-assessment pre and post-test scores were collected and analyzed. The Stay Independent pre-test scores (M=6.61, Mdn=8, SD= 4.17) were compared to

post-test scores (M=4.92, Mdn=6 SD=4.23) (Table 2, Figure 1). Analysis of the pre and post-test "Stay Independent" scores revealed a statistical difference ($p<0.05$) pointing toward a decreased fall risk (Table 1). With an effect size calculated at 1.0, the effect of the intervention was related to the improvement in the fall risk score (Table 1). Analysis of the data reveals the goal was accomplished.

Discussion

"Steady on Your Feet" was met with enthusiasm from participating residents. Data analysis revealed that the program supported a decrease in fall risk and that all program AIMs were met. Eighteen residents participated in "Steady on Your Feet". Residents who did not perceive that falls directly affect them, declined participation in the program. These adults were in the behavioral change stage of precontemplation as noted in the study by Prochaska and Velicer (1997). In this stage the older adult does not recognize that they are at risk of falling. This attitude certainly puts this group of older adults at risk for future falls. Many elders do not recognize or admit their risk for falls. This was a common reason given for non-participation in the program. Many older adults see falls as a part of physical decline and relevant only to the frail elderly (Stevens, et al., 2018). They see falls as related to home environments, but not to medicines or chronic conditions. "Steady on Your Feet" is a program that is designed to help identify multifactorial risks to prevent future falls. It is important to reach these older adults so that they will participate in fall risk reduction programs prior to falling. With this group of older adults, making the risk of falling personal and relevant may help change attitudes about falling (Stevens, et al., 2018) and the need to attend fall prevention programs. Robinson, et al. (2014), reported that the main reason elderly participated in programs was to maintain independence. Promoting fall risk reduction programs as a means to maintain independence may encourage

participation. Loss of independence was a reason given for attendance in “Steady on Your Feet” by several older adults. Encouragement and social support for participation in fall prevention programs helped encourage attendance in fall prevention programs (Steven, et al., 2018). Facility staff and a resident “cheerleader” offered ongoing encouragement throughout the entirety of the program. It was noted that at least one resident attended the program because her friend encouraged her to participate. It is important to have as much resident attendance in the program as possible so that all older adults living in the facility have the opportunity to decrease their risk of falling. In addition, a larger number of participants attending the program would make the results of the data analysis stronger.

One component of “Steady on Your Feet” was an action plan developed based on the resident’s specific fall risk factors. The use of an evidence-based algorithm provided knowledge that the interventions in the algorithm were proven to decrease fall risk. This was a strength of the program. Using the STEADI (Stevens & Phelan, 2013) program’s “Stay Independent” (CDC, 2017) fall risk self-assessment and algorithm (CDC, 2019) allowed the resident, in collaboration with the program director, a nurse practitioner, to easily develop their individualized risk reduction interventions. One resident remarked that she appreciated the one-on-one appointments as these allowed for personal attention when discussing her fall risks. Also, she noted that the personalized interventions developed in collaboration with the program director allowed her to focus on her own specific risk factors. The American Nurses Association (2017) noted the importance of individualized health care. Adults prefer information that is practical and that can be put into action. Adults see value in interventions if they are able to link the information to personal experiences (Beqiri, 2018). Schepens, Panzer & Goldberg (2011) and Wheeler, et al. (2017) found that adherence to fall prevention intervention recommendations were greater when

personalized education was developed. Atreia, et al. (2005), identified certain aspects needed to increase adherence to interventions. These included: distributing written materials, tailoring the education to the patient's level of understanding and including family members and caregivers in participation of the program. These criteria were used in "Steady on Your Feet". Evaluation of post-program data revealed that all program participants, developed individualized fall risk reduction interventions and 25% of participants used 25% of their interventions.

The residents received notebooks containing fall risk prevention information. Numerous residents commented that they found it very helpful to have the information in one central place. Also, participants reported that having the action plan written down helped them remember what interventions to perform to help decrease their risk factors. Residents appreciated the written educational brochures contained in the notebook. One resident used the information contained in the educational handout "How can I get up off the Floor? using my knees" (Injury Control Council of Western Australia, 2004) to get up from the floor after a fall. He reported that by following the information, he was able to get up off the floor for the first time without calling emergency medical services (EMS).

Health care confidence encompasses aspects of self-efficiency, patient activation, health literacy, self-management, shared decision making capacity and empowerment (Benson, et al., 2019). The focus of health confidence is on the person's perception. Measuring health confidence can inform health care providers about whether their patients understand prescribed health interventions. Health care confidence scores can assist health care providers to develop treatment plans specific to their patient's needs (Benson, et al., 2019). Patient activation is associated with improved outcomes and health confidence can be used as a measure of patient activation. (Nunlist, et al., 2016). It was noted that when residents were fully engaged in their

health; they fell much less. This was supported by the literature (Nunlist, et al., 2014; Wasson & Coleman, 2014). “The Steady on Your Feet” program worked to decrease the risk of falling by increasing patient activation through participation in a fall risk reduction program. After analysis of the data, there was no improvement in health confidence scores. This result is most likely the result of data analysis with a small sample size. However, the result could have been affected by several residents recording a lower score on a particular question on the Health Confidence Score tool post-test than the score they reported pre-test on the same question. Several residents stated that they scored the post-test question lower because they now realize that they need to know more about their health than they previously realized.

Overall evaluation of the post-program data supported a decrease in fall risk. These findings are consistent with what was found in the literature (Clemson, et al., 2004; Logan, et al., 2010; Palvanen et al., 2014; Tinetti, et al., 1994; Yates & Dunnagan, 2001). Although this QI initiative applies directly to the independent living facility where the program took place, this program, a multi-factor fall risk reduction program, can be successfully applied to other independent living facilities. Therefore, sustaining this program would be recommended for this facility and for replication in other independent living facilities looking to decrease the number of falls of its residents.

Limitations

The first limitation was the COVID-19 pandemic. Due to the vulnerability of this population and the high COVID-19 infection rates in North Carolina, this program did not start on the targeted date. This shortened the time for implementing and evaluating the interventions significantly (from 12 weeks to eight weeks). Overall, the statistical analysis of this program supports that it did help to decrease fall risk for the residents, however, a longer time period for

the residents to use the interventions and evaluate its effectiveness would increase the strength of the project results.

Another limitation is the non-generalizability of the data. As a QI initiative, the results of the data are only applicable to the independent living facility.

Recommendations

There are several recommendations for application of this program in other settings. Emphasis should be placed on getting all residents to participate. This could be achieved through participation in social activities with residents prior to the start of the program. Attending various events would provide an opportunity to discuss the consequences of falls and the benefits of attending a fall risk reduction program prior to falling. Having educational seminars, prior to beginning the program, with residents provides opportunity to explain the importance of fall prevention before falling occurs. Conducting individual appointments with hesitant residents to make the information personal and relevant may be effective in influencing participation in the program. Scheduling appointments with residents based on their schedule improved long term attendance in the program.

In addition, maintaining the use of a notebook which included educational materials and the written individualized action plan is recommended in future programs. As adults age, memory loss can become an issue. Therefore, having written information for the older adult to reference increases adherence to daily use of the fall risk reduction interventions. It is also recommended that residents with cognitive impairment have family members or an advocate attend all appointments.

Also, developing personal relationships with the elderly aids in developing a trusting relationship and is recommended. Maintaining high visibility in the facility, having

conversations with individual residents outside of the program as well as attending social events foster this personal relationship.

Finally, every individual independent living facility would benefit from investing in a wellness nurse on site. It is recommended that discussions with facility directors and upper management be undertaken to discuss the benefits and importance of a wellness nurse in the facility. The nurse would play an important part in advocacy for the resident's health and fall prevention. Continuing assessment on a daily basis would help identify and intervene in treating co-morbidities associated with falls. The nurse could encourage residents to participate in exercise programs offered by the facility or assist frail elderly in performing individually prescribed exercise programs in their condominiums. As a wellness nurse, the nurse could liaison with the resident's primary care provider to decrease fall risk before falls occur, thereby maintaining the resident's independence, quality of life, and decreasing the cost burden to the resident and the health care system. For the organization, the nurse could assess the facility's common areas for hazards or areas of needed improvement related to decreasing fall risk.

Conclusion

Falls are devastating to the elderly. Not only do falls cause injury, decreased quality of life and death, but also put an enormous strain on the health care system. Billions of dollars each year are paid for the care of persons experiencing non-fatal and fatal falls (Office of Policy Development and Research, 2013). Decreasing fall risk can help decrease falls, maintain health and quality of life for the elderly and decrease health care costs. This program, "Steady on your feet", used the STEADI algorithm (CDC, 2019) and the "Stay Independent fall risk self-assessment to identify resident's fall risks. One-on-one instruction, a notebook with educational materials and an individualized action plan developed in collaboration with the program director

were instrumental in achieving the results. Although the data cannot be generalized to the population at large, analysis of the data for the “Steady on your feet” program pointed in the direction of decreasing fall risk. It is recommended that this program be sustained in the independent living facility and reproduced in other independent living facilities interested in decreasing the number of falls in their residents.

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Table 1

Pre/Post Resident Scores

Evaluation Tool	Wilcoxon W Statistic	P value	Size Effect
Stay Independent	55.000 [a]	0.006	1.000000
Health Confidence Score	17.500 [a]	1.000	-0.027778
Chair Rise	10.000 [b]	0.291	-0.444444

"Note". [a] 3 pair(s) of values were tied; [b] 5 pairs(s) of values were tied

Table 2

Descriptions of Resident's Scores

	N	Mean	Median	Standard Deviation	Standard Error
FRSA pre	13	6.61538	8	4.17410	1.15769
FRSA post	13	4.92308	6	4.23205	1.17376
HCS pre	11	10.18182	12	2.56196	0.77246
HCS post	11	10.27273	11	1.73729	0.52381
CR eval pre	13	6.07692	6	6.17065	1.71143
CR eval post	13	6.76923	5	6.55939	1.81925

"Note". Stay Independent fall risk self-assessment (FRSA); Health Confidence Score (HCS); Chair rise (Chair Rise)

Figure 1

Pre-test/Post-test Fall Stay Independent fall risk self-assessment scores

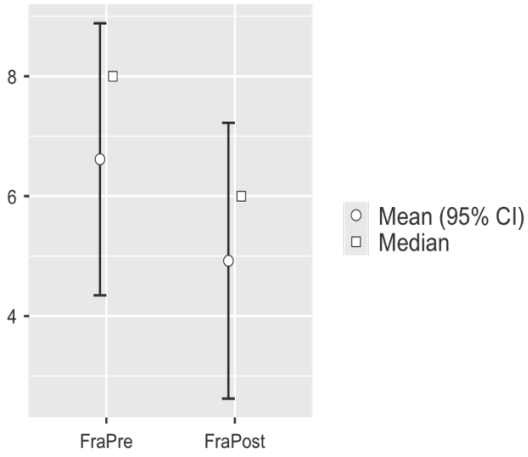


Figure 2

Pre-test/Post-test Health Confidence Score

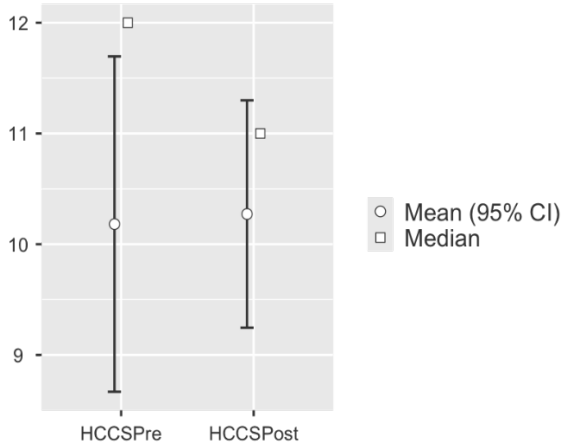
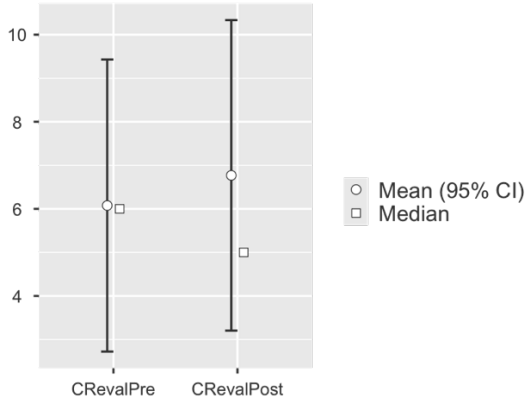


Figure 3

Pre-eval/Post-eval Chair rise



Appendix A

ACTION PLAN

Date: _____
Name: _____
Goal: _____
_____
_____

Objective	Task to achieve goal	How will I know I succeed	Time frame	Resources (what or Who) needed to complete task