UNIVERSITY of INDIANAPOLIS.

School of Occupational Therapy

Community Based Fall Prevention Program for Older Adults

Faith Wilkins, OTS

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A capstone project submitted in partial fulfillment for the requirements of the Doctor of Occupational Therapy degree from the University of Indianapolis, School of Occupational Therapy.

Under the direction of the faculty capstone advisor:

Beth Ann Walker, PhD, MS, OTR, FAOTA

Abstract

Falls are a leading cause of injury in older adults attributed to lack of physical activity, social isolation, and health conditions. Fall prevention courses are designed to educate participants on fall safety, increase activity levels and social engagement. The purpose of this capstone experience was to develop and evaluate the effectiveness of implementing educational sessions based upon the evidence-based fall prevention program "My Safe and Sound Plan" delivered to older adults at Flanner House. The value of the group fall prevention courses was assessed by participants through pre/post tests using a Likert scale. All participants reported an increase in engagement in activities they enjoy. Five out of six participants reported feeling more satisfied with life. All participants reported a reduction in fear of falling. Four out of six participants reported an increase in knowledge of fall risks. The results of this capstone project indicate a positive impact on participant knowledge, exercise levels, and fear of falling.

Introduction

Flanner House is a nonprofit organization that has been serving the Northwest side of the Indianapolis community since 1898. Flanner House's mission statement is "to support, advocate for and empower individuals, children and families by applying educational, social and economic resources that move members of the community towards stabilization, and self-sufficiency" (Flanner House, 2022). Flanner House recognizes the lack of innovative, accessible and person-centered services offered in the community. Flanner House offers residents a safe, structured environment for individuals of all ages, abilities, and backgrounds to learn, play and engage with the community around them. The organization analyzes the socio-economic situation of the city's residents to tailor its programs and target key community issues. This year Flanner House is celebrating 125 years of serving thousands of individuals in Indianapolis (Flanner House, 2023).

The Senior Program at Flanner House has a variety of programs and activities offered for the older adult guests to promote quality of life and stay engaged. Even a modest increase in social activities can have a significant impact on health and quality of life (Lachman, et al., 2018). Engaging in social and productive activities, like taking an art class or becoming a volunteer in your community, may help to maintain well-being (National Institute of Aging, 2017). Falls in older adults are associated with limitations in activity participation and a loss of personal independence (Leland et al., 2012). According to the CDC (2019), "one out of five falls causes a serious injury such as broken bones or a head injury". This indicates the importance of fall prevention interventions for older adults in the community. Implementing an evidenced-based fall prevention program will address specific risk factors and apply targeted interventions to address those risks.

Background

Occupational Therapy

The National Institute on Aging suggests that "older adults who participate in meaningful activities, like volunteering in their communities, say they feel happier and healthier" (2017). Falls present as barriers to participating in meaningful activities older adults want to do at home and in the community safely. A study completed by Wheeler et al. (2018) showed that occupational therapists demonstrated a 22.2% improvement in implementing evidence-based interventions after completing fall prevention training modules. Elliott and Leland (2018) found that exercise, education on prevention, home safety modifications, and fall prevention programs are effective in reducing the number of falls in older adults. "When older persons living in the community received an assessment and multifactorial interventions tailored to their needs, the number of falls was reduced by 25 percent" (Van Voast Moncada, 2011). Successful occupational therapy interventions for fall prevention include improving strength, balance, gait through exercise, managing medications, and reducing the fear of falling (Leland, et al., 2012). Occupational therapy practitioners are uniquely qualified to address the multifactorial nature of falls, given their knowledge of factors that influence occupational performance (Peterson & Clemson, 2008). The guidance of an occupational therapist mindset will help to take steps to reduce fall risks and safely increase occupational engagement in activities they value.

Falls and Fall Prevention

The United States Census Bureau projects that in 2030, one in five Americans will be 65 years old or of retirement age. Falls are a major concern for older adults that lead to injuries, fear of falling, loss of confidence, and a loss of independence when performing daily activities and community participation (Pereira et al., 2008). Many older adults have a higher amount of

risk factors resulting in a higher prevalence of falls. Risk factors include weak muscles, poor balance, dizziness, foot injuries, memory issues, vision/ hearing impairments, medications, behaviors, and changes in bladder or bowel (CDC, 2017). The CDC states, "in 2019, the emergency department recorded over 3 million visits for older adult falls". Some falls lead to injury and to fear of falling. The psychological impacts of experiencing a fall can result in older adults getting out of the house less often, resulting in lower levels of physical activity, social connection, and occupational participation (Curl et al., 2020). A Fall Prevention program may play an important role in education on fall safety, risks, and increase activity levels and social engagement.

Community-based organizations, such as Flanner House, play an important role in promoting the health and well-being of the residents in their community. Many of the services provided by Flanner House help people of all ages maintain healthy lifestyles and improve their quality of life. This includes expanding efforts to reduce falls among older adults while they age in place. Many community settings offer group-based fall prevention programs for older adults. Fall prevention programs are designed to educate individuals on fall safety, with the goal of increasing social participation and activity levels. There is a plethora of evidence-based fall prevention programs such as Healthy Steps in Motion, a Matter of Balance, Healthy Steps for Older Adults, Stay Active and Independent in Life, and others (NCOA, 2021). Thompson et al., (2019) found that "exercise interventions aimed at reducing falls in older adult's exercise classes containing multiple components (i.e., balance, strength training) exhibited a significant reduction in the relative risk of falls, as well as risk of falling". Valatka et al. (2021) found that "75% of participants who reported falls prior to participating in the fall prevention program 'Matter of Balance' reported a reduction in falls and 71% reported a reduction in fear of falling

following the course". Participants in the Fallproof Balance and Mobility Program "expressed their experiences of better fall prevention strategies and how the program positively impacted fear of falling, agility, and posture" (Osho et al., 2020). Involving physical activity as well as non-exercise-based programs that offer indirect physical benefit and social engagement have been shown to decrease fall levels (Albert & King, 2017). Physical activity and social engagement are valuable for physical health, mental well-being, and satisfaction in community programs.

The "My Safe and Sound" Plan: For Staying Falls Free (Howard, 2018) will be used for participants to learn to view falls and fear of falling as controllable, set realistic goals to increase daily activity in their day, change their environment to reduce fall risk factors, and exercise to increase strength and balance. This program consists of group settings covering a range of issues including falls and risk, strength and balance exercises, home hazards, foot care, vision, vitamin D and calcium, heart health, and medication management (Howard, 2018). Prevention of falls is vital to maintain personal independence in older adults. Occupational therapists can use education to change behavior and improve older adults' falls self-efficacy—that is, their confidence in performing activities without falling (Cheal & Clemson, 2001; Peterson & Murphy, 2002). Using an evidence-based tool, such as "My Safe and Sound" Plan, "with content validity increases the likelihood of clear evidence translation and successful occupational therapy intervention outcomes" (Howard et al., 2019). The goals of the program are to help older adults improve and/or maintain mobility and independence, learn and use health information focused on falls reduction and other health-related behaviors, and socially engage with other older adults.

Theory/ FOR

The theoretical model for occupational therapy, Person- Environment-Occupation-Performance (PEOP), was used to inform this capstone project. This model focuses on factors and its relationship to successful occupational participation (Cole & Tufano, 2008). It was used to examine multiple factors related to needs and barriers to falls and fall prevention. The PEOP (Figure 1) Model demonstrates the relations of the person, environment, occupation, and performance influence. If one aspect changes, such as the environment, then this can affect the person's occupational engagement or participation. By using this model, occupational therapists can develop fall prevention programs which explore the interaction between person, environment, occupation, and performance to help older adults to make informed decisions to reduce fall risks and promote occupational participation.

The Lifespan Frame of Reference works well with the PEOP model because the person, environment, and occupation domains are always interacting, changing and developing across the lifespan. For older adults, the Lifespan reference addresses motivational drives and transitional roles (Cole & Tufano, 2008). Older adults who have a negative perception of aging and have difficulty transitioning through life have higher risk for poor health and functional outcomes (WHO, 2016). This frame of reference will be used as a guide to consider the transitional roles associated with aging to facilitate the delivery of a fall prevention program aimed to enhance participation and engagement in their environment and occupations. The PEOP model and Lifespan Frame of Reference served to provide a framework for better understanding how occupational therapy can be involved at Flanner House to create fall prevention programming that better targets the perceived wants and needs of the older adults the organization serves.

Project Design

Falls are the leading cause of fatal and non-fatal injuries among older adults. Research shows that falls can be prevented, although falls are commonly seen as a naturally occurring event for older adults. With the growing older adult population, resources for effective fall prevention strategies can benefit the community. Increased fall rates in the older population can be from various issues including social isolation, illness, and lack of activity. The purpose of this Doctoral Capstone Experience (DCE) is to develop and evaluate the effectiveness of educational sessions based upon an evidence-based fall prevention program "My Safe and Sound Plan". Participants were surveyed before and after completion of the 4-session course on their selfperceived fear of falling, life satisfaction, and lifestyle habits. The fall prevention program included fall risk assessments, education, exercise, and support for older adults through social engagement. "My safe and sound plan" includes fall risk assessments such as strength, endurance (30 second chair stand), balance, functional reach, and balance confidence (Howard, 2018). An additional measurement the student included was the Fall Efficacy Scale (FES), an assessment tool based on the construct of self-efficacy, to incorporate behavioral implications (confidence, self-efficacy) as they contribute to choices that can increase or decrease fall risk and fear of falling.

Project Implementation

This was a single group pretest/posttest project of older adults participating in a group fall prevention program, using "My Safe and Sound Plan", in a community setting between February 2023- March 2023. There were four educational sessions consisting of group discussions on various topics related to fall risks encouraging social interaction and storytelling (Refer to Table 1 for schedule and organization). Every session included the teaching of educational concepts,

interactive activities, and discussion to engage the participants. The student developed materials including a lesson plan, printed session handouts, informational handouts, and activity worksheets to correspond with each session's topic. The course was voluntary, at no cost, to the older adults participating in the Senior Program at Flanner House. The program was intended for older adults concerned about falling, restricting activities in daily life due to fear, having a fall history, are 60 years of age or older, or are interested in improving their strength and balance. Challenges in implementation included transportation access and lack of male enrollment. Successes included engagement and participation throughout the program.

Project Outcomes

A total of six older adults agreed to participate in the Fall Prevention Program. There were five females and one male. The participants were aged 75 years or older. All participants were present during the last three sessions and completed pre and post questionnaires. There were only five participants during the first session. Data collected for information finding included fall frequency, age, social support, assistive device (cane, rollator, etc.), demographic information, fall risks at baseline including a 30 second chair stand, strength, balance screening, taking more than 3 medications, frequency of social activity outside the home, average weekly exercise, and whether the participant had an established exercise routine. Only one senior reported falling six months prior to the start of the program and three other older adult participants had a fall history within the past five years.

The 30 Second Chair Stand Test is a physical performance test that was used to measure endurance. The participant, with arms folded across the chest and feet shoulder-width apart, completed as many full stands as possible in 30 seconds. Due to safety concerts, three participants could not complete the 30 second chair stand, indicating a fall risk. The strength test

included completing one chair stand with arms folded across the chest and feet shoulder width apart. The balance test consisted of the participants standing in front of a chair, with their feet together, arms folded across their chest and holding their balance for 30 seconds. The FES was used to measure falls self-efficacy. Results show that five out of six participants reported that fear of falling did not have an effect on their life before implementing the program. Although, after implementing the program, participants reported improvements in fear of falling.

A five-point Likert scale was used to assess self-reported pre and posttests about the value of group fall prevention courses on fear of falling affecting their ability to participate in activities they enjoy, life satisfaction, comfort openly expressing concerns, exercise frequency, social engagement, and knowledge on fall risks (footwear, vision, medication/vitamin d, home safety, and exercise/physical activity). All participants reported an increase in comfort expressing concerns to a healthcare provider about different risks for falling. All participants reported an increase in engagement in activities they enjoy. Only five out of six participants reported feeling satisfied with life. All participants reported a reduction in fear of falling. There were four participants who reported an increase in their exercise frequency and five reported an increase in knowledge of fall risks (vision, footwear, etc.), with the one senior being undecided. Refer to Figures 1-5 for a visual to participants responses using the five-point Likert Scale. To track follow-up behaviors and adherence during the program, a one-page weekly exercise log was used to record participation in strength and balance exercises at home. Only one out of the six participants did not complete their exercises weekly over the 4-week course. After completion of the program, five participants reported that they plan to continue to complete the exercises learned for strength and balance.

Summary

This capstone project evaluated the effects of a 4-session educational group based on the "My Safe and Sound" Fall Prevention program on fall frequency, exercise, fear of falling, and life satisfaction in community dwelling older adults by self-report. The program was designed as a tool for fall prevention for older adults living served by Flanner House. The program was designed to encourage most participants to increase their engagement in weekly exercise. Participants were encouraged to continue the exercises they learned after completion of the course. Most of the participants reported some form of exercise prior to the program, but increased frequency was reported following the course. In addition, most of the participants denied fear of falling impacting their engagement in occupations before the program. Although, the participants expressed improvement in fear of falling after completion of the program. The group sessions allowed individuals to share knowledge, strategies, storytelling, and experiences to increase a positive program outcome. The program promoted adherence to a weekly exercise plan to maintain and improve physical mobility and self-efficacy. Falls can have a major impact on an individual's quality of life. "Implementing multiple preventive measures early and evaluating them often can facilitate your mobility, reduce your chances of losing balance, and help maintain your quality of life" (Manor, 2019). The results of this capstone project indicate a positive impact on participant knowledge, exercise levels, and fear of falling.

Conclusion

The "My Safe and Sound Plan: For staying falls free" educational sessions were effective in increasing fall related knowledge to community dwelling older adults and their ability to reduce fall risk factors. Encouraging fall risk reduction and behavior change in older adults is essential in fall prevention due to the multifactor risks and potential issues associated with

falling. Participants from Flanner House who participated in this capstone project self-reported decreased fear of falling affecting their everyday engagement in activities, increased exercise frequency, and life satisfaction. Flanner House can use "My Safe and Sound Plan" to help educate older adults on fall prevention strategies. Occupational therapy plays a critical role in improving safety and emphasizes the importance of reducing fall risks inside the home. Falls are an important area of practice for occupational therapists and require a holistic approach to reducing fall risks. Occupational therapists working with community- dwelling older adults should be aware of fall prevention research and recognize the need for future research demonstrating the efficacy of occupational therapy interventions addressing fall prevention in the areas of medication, behavior modification, vision, and appropriate footwear.

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Session 1 (Week 5)	Introduction and Exercise Overview of the program, sharing fall experiences, learning different fall risks, and introducing exercises, benefits and barriers of exercise, and safe mobility, changing their mind -Identification of intrinsic/extrinsic fall risk factors. - Participants shared personal experiences and feelings related to falling -Educational concepts -Small group discussion - Instruction on strength and balance exercises - Exercise log				
Session 2 (Week 6)	Home Safety				
	Going over different home safety techniques and adaptive equipment. Identify hazards in the home, go over the home safety checklist, and problem-solving solutions. - Educational concepts -Small group discussions at each table -Activity - Home safety checklist and exercise log				
Session 3 (Week 7)	Health Management				
	Talk about certain medications that increase fall risks. Identify the importance of heart health, Vitamin D and Calcium to protect from fall injury. -Shared results of their Home Hazard Checklists - Educational Concepts -Small group discussion - Activity - Exercise Log				
Session 4 (Week 8)	Vision and Footwear/ Footcare Discuss the influence of vision on right of falling and strategies on how				
	Discuss the influence of vision on risk of falling and strategies on how to get around the community and reduce the risk of falling. Learn about the features of safe footwear and identify hazards. - Educational Concepts - Small Group discussion - Activity - Exercise Log				

Figure 1. Pre and Post Test

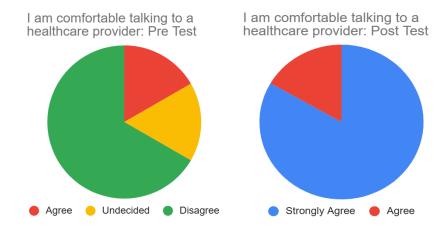


Figure 2. Pre and Post Test

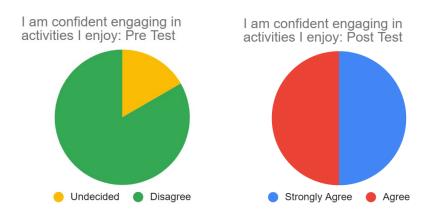


Figure 3. Pre and Post Test

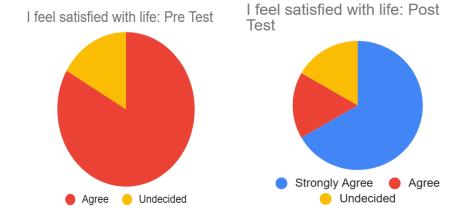


Figure 4. Pre and Post Test

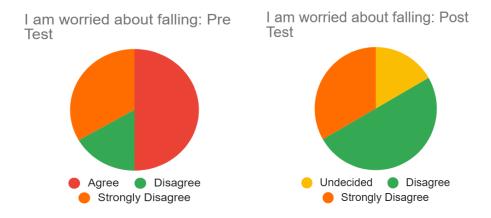
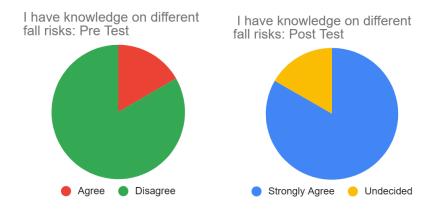


Figure 5. Pre and Post Test



Wee k	DCE Stage (orientation, screening/evaluatio n, implementation, discontinuation, dissemination)	Weekly Goal	Objectives	Tasks	Date comple te
1	Orientation	1) Complete orientation by the end of the week	Meet with site mentor, other site personnel, and the site participants to introduce myself and educate them on why I am here/what I will be doing for the 14 week	Set up meetings with key personnel Create a talking point document for when I meet with various people	1/13
	Screening/Evaluati on	2)Complete Needs Assessment by the end of the week	Document supervision plan and update MOU with site mentor Understand site environment/wh ere to work/dress code/ etc Finalize questions for Needs Assessment Complete SWOT analysis	Finalize MOU Ensure that all paperwork for orientation is complete Determine who to meet with and what questions to ask and set up meeting	

2	Screening/Evaluat ion	1)Complete search of literature for program evaluation measures by mid- week	Establish Outcome assessment	Review outcome assessments with site mentor & faculty mentor Finalize Introduction	1/20
3	Screening/Evaluat ion	1) Complete outcome assessments	Administer survey to participants Complete Fall Risk assessments with participants Update Background	Finalize Background Review evidence for best Theory/ Framework	1/27
4	Screening/ Evaluation	1) Finish outcome assessments	Administer survey to participants. Complete Fall Risk with Participants Update Theory/Framew ork Assess outcomes/ feedback from surveys	Finalize Theory/ Framework Section Write Project Design	2/3
5	Implementation	Complete first workshop session	Complete educational concepts	Complete first session on introduction	2/10

			Create small group discussions. Create handouts on walker safety, getting up after a fall, and cane safety Create exercise logs Create activity Create attendance sheet	to fall risks, exercise, and changing one's mind. Creating a schedule	
6	Implementation	2) Complete second workshop session	Complete educational concepts Create small group discussions. Print out exercise logs Create handouts/resourc es. Create activity	Complete second session on home safety Provide a home safety checklist. Administer a mini quiz	2/17
7	Implementation	3) Complete third workshop session	Complete educational concepts Create small group discussions. Print out exercise logs	Complete third session on Vitamin D, calcium, and medication	2/24

			Create handouts/resourc es on vitamin D, calcium, and medication management. Create activity		
8	Implementation	4) Complete fourth workshop session	Complete educational concepts Create small group discussions. Print out exercise logs Create handouts/resourc es on vision/ footwear Create activity	Complete fourth session on vision/ footwear	3/3
9	Outcomes/ Discontinuation	1) Outcome assessments	Administer post survey Research different resources for Flanner House Write Project Outcomes and finish Project Implementation	Finalize Project Implementati on section Assess outcomes	3/10
10	Discontinuation	1) Outcomes/ Disseminati on	Revisit Dissemination Plan	Finalize Outcomes Section	3/17

11	Discontinuation	1) Discontinuat ion	Continue to finalize Scholarly Report Work on Dissemination Plan	Work on Scholarly Report Work on Disseminatio n Plan	3/24
12	Discontinuation	1) Discontinuat ion	Continue to finalize Scholarly Report Work on Dissemination Plan	Work on Scholarly Report Work on Disseminatio n Plan	3/31
13	Dissemination	1) Disseminati on	Dissemination Presentation Resource Packets	Finalize summary, conclusion, and abstract sections Present Disseminatio n Plan to Debra White and Gerald Ardis	4/7
14	Dissemination	1) Disseminati on	Evaluation Finalize Scholarly Report	Finalize Disseminatio n Plan Complete Final Evaluation with Debra White	4/14