

FALL PREVENTION EDUCATION FOR
APARTMENT DWELLING
SENIORS: A SELF-EFFICACY STUDY

By

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First Reader



Second Reader

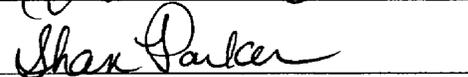


TABLE OF CONTENTS

Dedication.....	iii
Acknowledgement	iv
Lists of Tables.....	v
Lists of Definitions, Symbols, Abbreviations, Glossary, etc:.....	2
Abstract:	3
Chapter I	
Introduction.....	5
Purpose.....	5
Hypothesis.....	5
Significance.....	6
Chapter II	
Review of Literature.....	8
Theoretical Underpinnings.....	14
Chapter III	
Methods and Study Design.....	18
Variables.....	18
Sample.....	19
Participant Recruitment.....	20
Assignment to Groups.....	20
Intervention Implementation.....	21
Data Analysis.....	24
Chapter IV	
Results.....	25
Descriptive Statistics.....	28

Chapter V	
Discussion.....	30
Limitations.....	32
Recommendations.....	34
References.....	36
Appendix A.....	39

Dedication

This research project is dedicated to those individuals who live with the fear of falling, and to the volunteers who participated in this study.

ACKNOWLEDGMENT

I would like to thank Minnie Bluhm and Dr. Shan Parker for their support, encouragement, and expertise in the review of this study. I also wish to extend my grateful appreciation to David Keswick for assistance with interpretation of data results and SPSS files. Finally, I would like to acknowledge my husband, who provided me with support and valuable input throughout this process.

List of Tables

Table 1

Mean Rank for comparison and experimental groups.....26

Table 2

Mann-Whitney U Statistic and P-Values.....27

Definitions

Activities of daily living (ADL): The typical life tasks required for self-care and self-maintenance, such as grooming, bathing, eating, cleaning the house and doing laundry (Dunn, 1991).

Adaptive Equipment: Adaptive equipment that will be discussed by the student researcher in this study includes: extended tub bench, shower chair, sock aid, reacher, bedside commode, and grab bars.

Co-morbidity: Number of prevalent chronic conditions (Stuck et al., 1999).

Community Dwelling Seniors: A person living in a private residence as opposed to a hospital, nursing home, or retirement home (Steinmentz & Hobson, 1994).

Disability: Difficulty carrying out activities of daily life (Stuck et al., 1999).

Self-Efficacy: A person's confidence to perform a specific task and in overcoming barriers to achieve that behavior (Baranowski, Penny, & Parcel, 2002).

Social Cognitive Theory (SCT): Theory developed by Albert Bandura that attempts to explain underlying cognitive variables and influence behavior change. Focuses on the psychosocial components of health behavior, including incentives, outcome expectations, and self-efficacy (Resnick, 1999), that influence behavior change (Baranowski et al., 2002). Bandura theorizes that these factors have a strong influence over the choices that individuals make, and therefore can be targeted to promote changes in health behavior (Baranowski, et al.).

ABSTRACT

An aging population creates the need for interventions aimed at decreasing dependence in ADL performance. Research indicates that self-efficacy and fears of falling affect both ADL performance and ADL dependence. The purpose of this program was to determine the effectiveness of a fall prevention education program in increasing participants' feelings of self-efficacy to perform specified ADLs without falling. A convenience sample of individuals over the age of 65 who resided in apartment complexes exclusively for senior citizens was used to determine the effectiveness of the intervention. The ADLs of concern included simple housecleaning, dressing, simple meal preparation, bathing, simple shopping, getting in and out of a chair, going up and down stairs, walking around the neighborhood, reaching into cupboards, and hurrying to answer the telephone. A quasi experimental design was used to conduct the study.

Participants in the experimental group attended two sessions consisting of fall prevention education, instructions on the use of adaptive equipment, and opportunities to practice newly learned behaviors. Both groups completed the Falls Efficacy Scale.

Thirty participants were included in this study (N=30). These included fourteen participants in the comparison group and sixteen in the experimental group. Thirty eight participants in the experimental group attended the first session, but due to attrition, the final number of participants in this group was sixteen. Data analysis was performed to determine whether a relationship existed between the intervention and self-efficacy for completing ADLs without falling. While many participants verbalized feelings that the intervention was helpful to them, no relationship

was found between participation in the intervention and higher self-efficacy for completion of ADLs without falling.

Future investigations may find the current study helpful for avoiding similar limitations which act as barriers to obtaining results. Limitations of this study include a small sample size, cognitive deficits noted in some participants, questionable independence with ADL performance, location of the experimental sessions, and attrition.

Chapter I

Introduction

As the population ages, preventative care aimed at reducing costs, increasing life expectancy, and improving quality of life is becoming of central importance in health care. Falls are costly, not only in financial terms, but also in their contribution to loss of independence, self-confidence, and diminished quality of life. Current US health policy has identified falling as a major health issue, and aims to reduce the number of falls by the year 2010 (United States Government, 2000).

Purpose

The purpose of this study was to determine whether providing fall prevention education to community dwelling seniors would increase self-efficacy for performing specified activities of daily living (ADL) without falling. Incidents of disability decrease independence in ADL, and have a profound effect on both the health care system and the quality of life for the individuals affected by disability. Health education directed at increasing self-efficacy in ADL performance promises to have a dramatic effect on the quality of life for individuals. Individuals who have fallen in the past can suffer from both short and long-term detrimental effects, such as anxiety, loss of mobility and independence, and physical disability, all of which decrease quality of life. By preventing falls and the consequences which accompany them, individuals can preserve a high quality of life.

Hypothesis

The hypothesis of this study is as follows: Providing fall prevention education will increase participants' self-efficacy for performing the following tasks without falling: simple

housecleaning, dressing, simple meal preparation, bathing, simple shopping, getting in and out of a chair, going up and down stairs, walking around the neighborhood, reaching into cupboards, and hurrying to answer the telephone.

Significance

Falls have negative ramifications on mobility, independence, psychosocial interaction, and can have a financial burden on the health care system, the individual, and the family. Falls are related to decreased self-efficacy in task performance, which is linked to reduced activity levels (Cheal & Clemson, 2001). There is substantial research linking fall prevention programs to decreases in falls, but these studies focus primarily on extrinsic risk factors and physiological changes that are associated with falls (Hill-Westmoreland, Soeken, & Spellbring, 2002). Studies providing fall prevention programs aimed at increasing self-efficacy during ADL performance are very limited. Only one research study on this topic was available, and this study focused on Australian community-dwelling seniors, not Americans living in senior apartment facilities. According to this study, individuals who participated in fall prevention education programs also reported higher self-efficacy for ADL performance (Cheal & Clemson, 2001). It is necessary that research address the implementation of fall prevention programs relating to self-efficacy and task performance because a program that proves to be an effective means of increasing self-efficacy promises to have positive outcomes for quality of life and decreasing health care expenditures. This occurs by providing participants with the confidence to perform specified tasks, which has been found to improve participation in activity performance. Those who sustain patterns of low activity levels have been found to be at increased risk for mortality (Hirvensalo, Rantanen, & Heikkinen, 2000).

Fear of falling can result in decreased motivation to perform tasks, leading to activity restriction. This activity restriction may cause functional impairments or limitations. Limitations have been found to be associated with increased risk of institutionalization and death (Resnick, 1999). Because this program aims to improve self-efficacy for task performance, another inadvertent benefit may be to prevent activity restriction and improve quality of life.

Chapter II

Review of Literature

Persons 65 and older currently account for less than 13% of the United States population, but consume more than 35% of total health care expenditures (Fried, Bradley, Williams, & Tinetti, 2001). It is estimated that by the year 2020, there will be 60 million people 65 years of age and older, and an estimated 13 million people over the age of 85 by 2040 (Dayhoff, Suhrheinrich, Wigglesworth, Topp, & Morre, 1998).

Maintaining independence for older persons is of central concern for health care practitioners (Gill, Williams, Mendes de Leon & Tinetti, 1997). ADL disability limits autonomy and increases risks of hospitalization, nursing home admission, and death (Penninx, et al. 2001). ADL performance is a central component of older adults' health status, and predicts many health outcomes, including nursing home placement (Fried et al., 2001).

Risks for ADL dependence include both intrinsic and extrinsic factors. Intrinsic factors include physiological factors caused by aging or medication side effects. Some common intrinsic factors are cognitive impairment, depression, co-morbidity, lower extremity functional limitations, decreased social contacts, decreased physical activity, poor self-perceived health, smoking, and vision impairment (Stuck et al., 1999). Extrinsic factors include those in the environment, such as poor lighting or obstacles resulting in falls (Woodland & Hobson, 2003).

The ability to perform ADLs is an important measure of age-related disability. Approximately 39% of all non-institutionalized adults over the age of 65 report limitations in activities of daily living. These limitations are related to institutionalization (Resnick, 1999) because decreased ability to perform ADL tasks is a predictor of increased nursing home admission, increased use of hospital services, increased use of physician services, decreased use

of primary and preventative care and increased mortality (Dunlop, Manheim, Sohn, Liu, & Chang, 2002).

Falls are the leading cause of injury due to trauma among older adults (Centers for Disease Control, 2000). Approximately one third of community dwelling older adults suffer from falls each year (Hill-Westmoreland, et al., 2002). Falls are a leading cause of morbidity and mortality in the US, causing 87% of fractures for people 65 years and older. One common fracture resulting from falls is hip fractures. Only half of those who are hospitalized due to hip fractures are able to live independently after the injury. There is also substantial financial burden due to falls in the U.S. Medicare costs for hip fractures in 1991 were estimated to be \$2.9 billion (CDC, 2000).

Falls not only result in physical injuries, but also can also lead to psychological trauma, loss of confidence and social withdrawal (Aminzadeh & Edwards, 1998). Loss of confidence and social withdrawal are intrinsic risk factors for falling (Stuck et al., 1999), and the cycle of falling, beginning with a fear of falling, leading to activity reduction and continuing with falling again, may be established, thus increasing the risk for ADL dependence and institutionalization (Resnick, 1999).

Fear of falling is common among the elderly, both for individuals who have experienced falls in the past and for those who have not (Tinetti, Mendes de Leon, Doucett, & Baker, 1994). Previous research indicates that between 40% and 73% of older people report fears of falling (Cheal & Clemson, 2001). One out of three people who have fallen report fears of falling again, and one out of three elderly people who have not suffered from a fall directly also report fear of falling (Brown, 1999).

Fear of falling has been shown to have effects on ADL performance and activity patterns in community dwelling seniors. Studies show that a correlation exists between fear of falling and activity restriction (Brown, 1999). Fear of falling and diminished confidence in safety during task performance can lead to self imposed activity restrictions (Cheal & Clemson, 2001). One study found that half of all fallers who reported fears of falling avoided activities that were previously engaged in, including decreased mobility patterns (Tinetti et al., 1994). This activity restriction can accelerate physical deterioration due to the normal aging process (Murphy & Tickle-Degnen, 2001). People sometimes suffer from the post-fall syndrome, which is characterized by a fear of falling after experiencing a fall. This is a condition that an ambulatory person may suffer from after experiencing a fall, causing intense fears and walking disorders (Suzuki, Ohyama, Yamada, & Kanamori, 2002). The result of this intense fear of falling can be seen in the following example: one fall may lead to a fear of falling, causing decreased mobility and functional independence, which may result in further falls and eventual institutionalization (Steinmetz & Hobson, 1994). Mobility has been found to be the strongest predictor of whether an individual is a faller or non-faller (Gunter, White, Hayes, & Snow, 2000). Individuals, especially the elderly, with poor mobility are at increased risk of falling when compared with those who are more mobile (Suzuki, et al., 2002).

Previous studies show a positive correlation between activity levels and quality of life (Bonito, 1998). Those persons who are able to perform self-care are found to have positive perceptions of self and health, as well as independence (Leenerts, Teel, & Pendleton, 2002). Individuals who are very fearful of falling are more likely to have a decreased quality of life and report lower life satisfaction than those who are less fearful of falling. Elderly people who are

very fearful of falling are also more likely to be frail than those who do not report high levels of fear of falling (Arfken, Lach, Birg, & Miller, 1994).

Individuals who report lower self-efficacy put less effort into the activities that they engage in, and show less perseverance in task performance (Seeman, Unger, McAvay, & Mendes de Leon, 1999). Fears of falling can lead to anxiety about independence (Suzuki et al., 2002). Just as fears of falling can lead to diminished participation in activities, and is related to decreased independence in ADLs, feelings of self-sufficiency can increase independence with ADL performance (Leenerts, Teel, & Pendleton, 2002). Self-efficacy is the individual perception a person has of his or her ability to perform specific tasks successfully (Cheal & Clemson, 2001). Those who have experienced falls in the past may avoid performing tasks that they believe may cause a fall. One study found that dressing and toileting tend to be significantly related to fear of falling (Suzuki et al.,). If individuals are afraid of falling while performing dressing or toileting, they may try to avoid these behaviors in an attempt to prevent falls. Self-reported functional limitations have also been found to be early predictors of ensuing disability (Stuck et al., 1999). Those individuals who report morbidities such as diabetes, arthritis and vision impairment are at greatest risk for suffering from future limitations in areas of self-care, especially for walking and bathing (Dunlop et al., 2002).

Falls are the result of the multiple risk factors. Many of the circumstances that contribute to falling can be altered to decrease risk (American Geriatrics Society, British Geriatric Society, & Academy of Orthopedic Surgeons Panel on Falls Prevention, 2001). Extensive research is available on programs aimed at reducing falls in elderly persons, but literature focusing on improving self-efficacy for performing of ADLs without falling is limited.

Currently, most research focuses on the prevention of falls using a variety of approaches, and support is growing for the use of multifactor approaches to fall prevention. Studies using a multi-factor approach to fall prevention have shown promising results. These approaches have typically focused on strength and balance training along with behavior modification to reduce falls, but little research exists on programs targeting intrinsic factors such as self-efficacy. One study did, however recommend that self-efficacy training be included in programs targeted at preventing physical decline in seniors (Cheal & Clemson, 2001).

The most favorable intervention strategies for fall prevention would include identifying modifiable impairments and providing safe and effective interventions that could be attained in the home setting. An intervention of this type has the possibility of achieving optimal outcomes in community-based settings (Koch, Gottschalk, Baker, Palumbo, & Tinetti, 1994). Previous research has confirmed that community-based intervention programs can reduce nursing home admissions in seniors (Stuck et al., 1999).

Exercise programs alone can have positive impacts on falls, reducing reported falls 10% for those individuals participating in some of these groups. Programs incorporating fall prevention and exercise together also result in decreasing falls for community dwelling seniors (Hill-Westmoreland et al., 2002). One program providing exercises and balance activities together reported 75% fewer falls for participants with greater than 75% attendance than for individuals who did not participate in the program (Schoenfelder & Van Why, 1999). Many apartment complexes for seniors offer daily activities, including exercise groups.

Home assessments have been shown to increase self-efficacy and decrease falls among community dwelling seniors (Cheal & Clemson, 2001). Most falls occur within the home or in the surrounding area. Some environmental factors contributing to falls include poor lighting,

slippery rugs, and clutter (Johnson, Cusick, & Chang, 2001). This study addressed the environmental component to fall prevention by providing education on basic safety techniques of preventing falls in and around the home.

One recommendation that has been made to improve self-concept, self-care, and well-being is to provide education and skills to complete self care (Leenerts et al., 2002). This type of education may promote self-efficacy in self-care while encouraging positive perceptions of self, health, and functional ability, which is likely to enhance quality of life (Edwardson & Dean, 1999). Self-care activities also strengthen self-concept, which motivates people to engage in self-care behaviors, leading to the possibility of affecting the person's well-being in a positive manner (Minkler, Schauffler, & Clements-Nolle, 2000).

An example of a successful program using a multi-factor approach to increasing self-efficacy among older adults is the "Steady As You Go" program. This program was developed to study the correlation between a program providing opportunities for mastery and self-efficacy and task performance. One goal of this program was to provide participants with mastery experiences and skills development in community mobility activities in an attempt to increase the self-efficacy of participants for performing tasks in high fall-risk situations. The results of this program showed that participants reported higher levels of self-efficacy as well as task performance in the areas of using public transport, shopping and cooking, which indicates that activity participation and the inclusion of mastery experiences should be of primary focus in future fall prevention programs (Cheal & Clemson, 2001). This study aimed to provide fall prevention education to determine how it affects self-reported self-efficacy for performing specific tasks without falling. It provided participants with activity participation as well as

opportunities for mastery experiences to promote improved self-efficacy, which could later result in fewer falls and self imposed activity restrictions, and improved quality of life.

Theoretical Underpinnings

The proposed program utilized the Social Cognitive Theory (SCT), developed by Albert Bandura, as a theoretical foundation. This theory addresses self-efficacy during task performance, and places emphasis on the confidence one has in engaging in specific health behaviors. Self-efficacy is a major contributing factor to behavior change (Baranowski et al., 2002).

Bandura recommends several factors be included in programs aimed at changing health behaviors. These factors include skills development and practice, mastery experiences, exposure to positive role models, information provision, self-affirming verbal persuasion and the development of social support. Experiencing mastery in daily activities has been identified as the most important factor for building a strong sense of self-efficacy (Cheal & Clemson, 2001). The proposed program emphasized the importance of mastering daily activities by potentially limiting the fear of participants with regard to falling during these tasks.

Self-efficacy is an important factor for behavior change because it determines how much effort is invested in the task, which is directly related to the level of performance achieved (Baranowski et al., 2002). This program aimed to educate participants and provide them with mastery experiences to increase self-efficacy for performance of specific tasks without falling. To achieve this, participants must first be invested in the task, which, according to this theory, will lead to improved performance of the specified tasks, in turn creating higher self-efficacy.

It is recommended that tasks be broken down into incremental steps to promote self-efficacy (Baranowski et al., 2002). This provides the participant with the ability to master a specific step of the process before moving on to the next step, and improves confidence in ones' ability to successfully perform the task. This program provided participants with the skills to be successful in performing each of the specified tasks without falling by providing specific instructions relating to the individual task. This instruction enabled participants to master skills used to prevent falls.

According to this theory, participants can benefit from utilizing both observational and active techniques (Baranowski et al., 2002). This study provided participants with the opportunity to watch the student investigator perform the task successfully, as well as opportunities to perform the technique themselves. Participants were also able to observe their peers performing the task. It is expected that providing this type of environment for the participants fostered feelings of improved self-efficacy for safe task performance. Repeated successful task performance will then, theoretically, improve expectations of successful task performance, leading to behavioral change (Baranowski et al.).

This theory also focuses on the interaction between the person and the environment, (Baranowski et al., 2002) an important component to a fall prevention program, as most falls occur within the home (Johnson et al., 2001). An individual who has difficulty with his or her mobility may behave in a manner that limits activity in an attempt to prevent falls. This self-limiting behavior can alter the environment that the person surrounds him or herself with. For example, older adults sometimes make the choice to stay indoors during winter months to avoid falling on the ice. The individual's mobility difficulty has then caused modifications in behavior, which lead to a restriction of his or her environment. This, in turn, will likely influence

the choices that the person makes. The relationships experienced between the person, his or her behavior and the environment is called reciprocal determinism (Baranowski et al.). The SCT emphasizes the importance of these relationships.

Recommendations have been made to include self-efficacy training in programs targeting the prevention of physical decline for seniors (Cheal & Clemson, 2001). This is important when attempting to change a person's behavior since the intervention is more likely to be effective if the subject is confident in his/her ability to perform the task, as has been shown with healthy eating programs and smoking cessation (Baranowski et al., 2002).

Another component that is emphasized in the SCT, and also highlighted in the proposed intervention program, is behavioral capability. This construct focuses on the knowledge and skill level of the participant to achieve a certain level of mastery for the task (Baranowski et al., 2002). The intervention strategy incorporated behavioral capability by providing participants with the knowledge and understanding of skills for task performance in the form of lecture material and opportunities to practice recommended techniques. For example, participants were told that sitting on a shower chair while bathing can prevent falls in the bathroom, and were then asked to practice transferring onto and off of an extended tub bench.

According to the SCT, individuals must have the knowledge and understanding of a behavior, as well as the skills to perform it, to initiate behavior change (Baranowski et al., 2002). The instructional piece of the intervention provided knowledge to the participants of expected behaviors, and the practice opportunities provided the necessary skills to feel confident in performing activities.

Chapter III

Methods and Study Design

This study used a convenience sample, with participants living in four apartment complexes restricted to individuals who are 65 years of age or older recruited to participate in the study. The program utilized a quasi experimental design, specifically a non-equivalent group posttest only design. Participants in the experimental group attended two sessions over the course of two weeks aimed at improving their self-efficacy for performing specified ADLs without falling. Participants in the comparison group completed the Falls Efficacy Scale with no intervention prior to completing the scale.

This design was chosen due to budget and time constraints of the researcher, and threats to internal and external validity are present. While this type of design limits threats to history because it is presumed that both groups have had similar experiences, selection bias is likely to occur with this type of design because participants were volunteers and non-randomized. Volunteers may not be an adequate representation of the population, but because it is unethical to mandate participation in such a program, this was a threat that could not be overcome. Limitations of the study are discussed in further detail in chapter five.

Variables

This intervention attempted to improve participants' self-efficacy for performing specific tasks by providing education to apartment dwelling seniors. The independent variable for this study was fall prevention strategies. The dependent variable studied was self-efficacy for performing the following tasks without falling: simple house cleaning (sweep or dust), dressing, simple meal preparation, bathing, simple shopping, getting in and out of a chair, going up and

down stairs, walking around the neighborhood, reaching into cupboards and hurrying to answer the telephone. The participants' self-efficacy for performing these activities was measured using the Falls Efficacy Scale.

The Falls Efficacy Scale (FES) assessed the confidence that participants had in not falling while engaging in specified ADL tasks. This scale was developed by Tinetti, Richman and Powell (1990) in 1989, and is a 10-item rating scale, asking participants to rate each item from 1= no confidence to 10=extreme confidence (see Appendix A) (Tinetti, Richman, & Powell, 1990). The Falls Efficacy scale used a pilot test of 74 cognitively intact persons over the age of 65 to determine reliability measures. The test-retest reliability of this scale is $r=0.71$, and Cronbach's alpha = .91. FES scores from previous studies were found to be significantly associated with anxiety trait, general fear score, difficulty getting up after a fall and other measures of balance and gait (Tinetti et al.).

Sample

The study initially recruited a total of fifty-two subjects, including thirty-eight in the experimental group and fourteen in the comparison group. Due to attrition in the experimental group, data was analyzed for thirty subjects (N=30). This includes sixteen subjects in the experimental group and fourteen subjects in the comparison group.

Participants in both groups were obtained by using a convenience sample from four Genesee County apartment complexes that are exclusively available to people over the age of 65 and people who are disabled. Participants for this study were limited to men and women over the age of 65 who self reported independence with basic self-care and reported fears of falling in the last six months. Inclusion criteria were stated in the initial contact information provided to potential participants and reiterated during the introduction for both groups. Participants in the

experimental and comparison groups were from separate apartment complexes to limit confounding variables. Participants in the experimental group resided in south Flint and Clio, and those participating in the comparison group resided in Mt. Morris and Burton.

Participant Recruitment

Participants were recruited on a volunteer basis. Flyers were distributed to the apartment facilities with a brief program description. After the flyers were given to the apartment facilities, the activity director distributed them to the residents and scheduled the dates and times on the facility activity calendar. Sign up sheets were placed in each of the offices of apartment managers for potential subjects to reserve a space in the program at their respective complex. Potential participants who self-identified themselves as fitting the inclusion criteria and were interested in attending were asked to sign up for the program in the manager's office and attend on the scheduled day. Included with the sign-up sheets was information for potential participants to read that addressed more in-depth questions, such as the researcher's professional background.

Assignment to Groups

Managers were contacted from the apartment complexes and asked if the study could take place at their respective facilities. After receiving management consent, the researcher made contact with the activity director at each apartment complex. The student researcher was aware that participation may be limited at some apartment complexes. For this reason, the activity director was asked if the residents of that facility were generally more likely to attend the fall prevention program or be willing to fill out a survey with no program participation. The facilities where the activity director stated most residents were more likely to attend a program were placed in the experimental group, and the facilities where the activity director stated participation was likely to be limited were placed in the comparison group. The input of each

activity director was the deciding factor in whether the residents of that facility would be placed in the comparison or experimental group. This allowed for the highest level of participation based on staff members' knowledge regarding behaviors of residents, and differences between facilities in the use of organized activities for large numbers of residents.

Intervention Implementation

The experimental intervention consisted of two forty-five minute sessions aimed at increasing participants' self-efficacy for performing specified tasks without falling. These sessions were held one week apart to provide participants with time to practice using techniques discussed in the first session. The experimental group began with a brief introduction and reading of the informed consent form. Subjects were asked to sign the informed consent form to acknowledge understanding of the potential risks of the study. The following is a description of the intervention that was provided to the experimental group for the first and second sessions.

Session One: Participants were welcomed by the student researcher, which included an introduction of the student researcher, the purpose of the study and participants listening to the reading of the consent form. They were informed that no payment would be given for participation. Participants were asked to sign the consent form.

The intervention then began with a brief discussion as a large group on risks of falling in the home, which was led by the student researcher. Participants were asked to identify places and activities that could result in a fall. Places of increased risk for falling were identified as the bathroom, sidewalks, parking lots and kitchen. The student researcher also included information regarding the areas where falls frequently occur, such as near the bathtub and kitchen sink.

Following this discussion, participants were asked to split into smaller groups of 3-5 people for a 10 minute discussion on strategies that they use personally or know of being used to

prevent falls. This worked well for one of the experimental groups, but was difficult for the other group to complete because the group was held in the theater of the apartment complex, making it difficult for participant to converse with anyone other than the person next to them. For this group, they discussed strategies with the people sitting near them.

After groups discussed fall prevention strategies amongst themselves, the small groups reconvened into a larger discussion group to report on techniques that participants felt to be helpful in reducing falls. Some of the ideas that were verbalized included sitting on the toilet to get dressed and removing throw rugs from floors. The student researcher provided instruction to participants on additional techniques that can be used to prevent falls that were not discussed during the group, such as having adequate lighting and using grab bars when available. This was done to improve the participants' knowledge and self-efficacy. Participants also had a short discussion on items that can be used to notify family or ambulance services in case of a fall.

The first session ended with a brief recap of material by the student investigator, as well as a time for answering questions, and followed with dismissal of participants. Refreshments were provided to participants at the end of the program.

Session Two: One week following the first session, the second session began with a brief welcome to reintroduce subject material. This included an overview of what was discussed during the first session, and participants were asked to list some of the techniques that they were able to practice during the week. At both facilities, a number of participants stated that they were unable to recall if they had attended the first session, and were not able to remember the previous discussion. Some of the things that were mentioned from the people who did recall the first session included sitting on the bed to dress and using the grab bars available in the shower.

A large group discussion followed that addressed feelings participants had experienced about falling since the previous session, and the impact that the program had on their behaviors. Of the individuals who knew that they had participated in the first session, most of them stated that they were more conscious of their safety. This section of the program lasted about 5 minutes.

Participants were then instructed on the use of adaptive equipment, which lasted about fifteen minutes and included a demonstration of proper use techniques by the researcher. Instruction was also given for the multiple uses of a bedside commode. Information on prices and local vendors was provided, as well as insurance guidelines for covering each of these pieces of equipment. Participants were asked to practice using the equipment. In one group, participants were hesitant to practice using the equipment, so one person demonstrated the use of each piece of equipment, which included a shower chair, a reacher, a sock aid and an extended tub bench. For the other group, which was held in a theater, it was too difficult to have participants who were not in side seats or the front row to practice, so one volunteer practiced using all of the equipment. Prior to the first session, the researcher had requested alternative seating arrangements, but this was not feasible because of other activities going on at that time.

A brief 5 minute discussion followed, which provided participants with an opportunity to discuss implications that the program may hold for them in the future. Participants were then asked to take the Falls Efficacy Scale survey, after which refreshments were provided, and the participants were dismissed. This took approximately 15 minutes.

Participants of the comparison group were asked to complete the same survey that the experimental group completed. Participants for this group were recruited at the end of another activity in one facility, and while checking their mail in another building. For participants who stayed after a prior activity, the directions and consent forms were read at one time for everyone.

The participants who were checking their mail were given individual directions for completing the survey and signing the consent form. Following completion of the survey, all participants were provided with written fall prevention guidelines and snacks.

Data Analysis

A correlational analysis was performed on SPSS using the Mann Whitney U Test. Because the non-equivalent groups posttest only design is not conducive to analyzing cause and effect, this proposal calls for the use of a correlational analysis to determine whether there is a difference between the self-efficacy that participants report in the experimental and comparison groups. The Mann Whitney U Test is appropriate when at least one variable is measured on an ordinal scale (Cronk, 2002), as is the case in the proposed study. This type of analysis designates a probability distribution between the variables. To calculate the results, the confidence that each subject feels for each category is scored. The category scores are then summed for each group, and divided by the number of subjects in the group to establish a mean score. The null hypothesis, which is that the two groups are equal, is true if the difference between the mean scores is not significant. In this study, statistical significance was defined as a p-value less than .05.

Chapter IV

Results

This study included 30 participants who reside in apartment facilities restricted to senior citizens and met the criteria stated in the study. Sixteen participants were surveyed for the experimental group, and fourteen participants completed the survey in the comparison group. The mean rank for each group can be found in Table 1. Table 2 illustrates the Mann-Whitney U statistic and P-values found for the study.

There were no significant scores for this study. Therefore, the null hypothesis can not be rejected as the study failed to demonstrate a difference in self-efficacy for any variable.

Table 1
Experimental and Comparison Group Mean Ranks

	Experimental Group Mean	Comparison Group Mean
Simple House Cleaning	14.34	16.82
Dressing	13.75	17.50
Simple Meal Preparation	12.96	16.04
Bathing	12.23	17.96
Simple Shopping	15.09	15.96
Get In and Out of Chair	14.63	16.50
Going Up and Down Stairs	14.43	15.61
Walk around Neighborhood	15.87	14.07
Reaching into Cupboards	13.97	17.25
Hurry to Answer Telephone	12.85	15.07

Table 2

Mann-Whitney U-Statistic and P-Values for Self-efficacy Study

	Mann-Whitney U Statistic	P-Value
Simple House Cleaning	93.500	.417
Dressing	84.00	.188
Simple Meal Preparation	76.500	.280
Bathing	63.500	.061
Simple Shopping	105.500	.784
Get In and Out of Chair	98.000	.548
Going Up and Down Stairs	96.500	.705
Walk around Neighborhood	92.000	.562
Reaching into Cupboards	87.500	.296
Hurry to Answer Telephone	76.000	.431

Descriptive Statistics

A total of thirty participants (N=30) were included in this study. These participants all resided in apartment facilities exclusively for senior citizens, and all met the inclusion criteria. Sixteen subjects participated in the experimental group. Nine of these participants were from Rosehaven Apartments in south Flint, and seven were from Roxbury Apartments in Clio. Both of these facilities offer personal assistance with ADLs for a fee, and meals could also be provided for an additional fee. The cost of both of these facilities is approximately \$1,200 a month for a one bedroom apartment without provisions for meals or personal assistance. All of the participants from these facilities appeared Caucasian, but participants were not asked to identify their race. Three men and thirteen women participated in the experimental group.

One person from Rosehaven Apartments arrived to the sessions in a wheelchair, one person used a cane, and two people used a walker. None of the participants from Roxbury Apartments used a wheelchair, and one person arrived using a walker.

The comparison group consisted of seven participants from Lockwood Village in Burton and seven participants from Cedarwood Apartments in Flushing. Lockwood Village provides meals and assistance with self care for an additional fee, but this service is not available at Cedarwood. The cost of Lockwood is similar to that of Rosehaven and Roxbury. Cedarwood is a subsidized apartment complex, and rental rates are based on income. Three men and eleven women were represented in the comparison group. All participants appeared Caucasian, but were not asked to identify their race.

Participants from Lockwood Village were recruited after another activity and while they were socializing in the commons area. One person used a wheelchair, and all others were independent

with ambulation without an assistive device. Participants from Cedarwood Apartments were recruited while they were checking their mail. One person from this group used a cane and one person used a walker. No participants from this group used a wheelchair.

Chapter V

Discussion

The purpose of this study was to determine whether an educational intervention consisting of fall prevention techniques and behavior modification strategies would improve self-efficacy for performing specified tasks without falling. Research has shown that self-efficacy is an important indicator of function, and poor self-efficacy can lead to diminished activity levels, which may lead to further disability. Participants in the experimental group for this study were provided with education on the prevention of falls and attention was brought to the risks that certain activities may pose for falls.

The data analysis found that the null hypothesis could not be rejected for this study, as none of the variables were found to be significant. Participants of the experimental group verbalized benefits from attending the intervention, but it was not shown to impact self-efficacy for ADL performance without falling during the specified tasks compared to the comparison group.

The comparison group mean scores were higher than the scores from the experimental group for all items on the survey. This could be the result of several factors, including prior limitations with ADLs, a small study sample, cognitive deficits of participants and the inability of participants to practice fall prevention techniques due to the location of the group.

Although the criteria for this study stated that all participants must be independent with self care, the researcher questions whether all participants in the experimental group accurately understood this. Several of the participants from Rosehaven were accompanied by an assistant. If they were independent with self care, there should not be a need to receive assistance from apartment staff. Participants from the comparison groups and Roxbury Apartments all attended independently.

Another factor that may have influenced the results was the cognitive status of participants. No method was used to determine the ability of participants in the experimental group to learn new information, or to determine whether participants of either group were capable of accurately reporting their self-efficacy. Individuals with cognitive deficits often demonstrate a diminished capacity to learn new information, which was an integral part of this study. If participants in the experimental group were unable to learn new information, it would have negative ramifications on the efficacy of the study.

The sessions at Rosehaven were held in the theater because another activity was occurring in the activity room. This may have influenced the outcome of the study. The Social Cognitive Theory emphasizes the need for practicing the newly learned behavior, and because of the location of this group, it was not feasible for the participants at Rosehaven to do this. The inability for participants to practice with equipment may have led to poor carryover of information and no change in self-efficacy.

The survey used for this study focused on tasks that many of the participants felt were no longer options for them, not because of a risk of falling, but because they lacked the endurance to complete them. One example of this was shopping. Participants were instructed not to answer questions about tasks that they did not perform, but only three answers for all of the experimental questions were not answered, even though more than three people verbalized that they did not complete certain tasks.

Participants in the comparison group were recruited while they were attending other activities or walking around the apartment building. Neither of the facilities that were used for the comparison groups posted the information as requested to inform all residents of the program. One of the criteria for inclusion in this study was to be independent with basic self

care, based on self-report. Some of the participants from Rosehaven were accompanied by personal assistants, and it is possible that all of participants may have not met these criteria, although this was stated in the written and verbal instructions at the first session. The FES is meant to study individuals who are independent with self care, and if participants in the experimental group required assistance with ADL performance, their scores would be invalid.

Another factor that may have influenced the outcome of this study is the possibility that the participants in the experimental group became more aware of the risk for falling after participating in the study than their counterparts in the comparison group. Participants in the experimental group discussed threats of falling that exist, which may have increased the fears that some individuals felt. This would lead to a higher awareness of the risks, but a lower self-efficacy.

More education given to apartment staff to reduce the number of participants whose cognitive capabilities were diminished may have also improved results. The limitation of the location could have been avoided if the activity staff would have been better informed of the specific activities being conducted.

Limitations

There are a number of limitations to this study, including selection bias, cognitive deficits of participants, participant attrition, small sample size and the location of the group. Selection bias appeared to be a factor influencing the results of the study. While all residents of the apartment complexes where the experimental groups were held were provided with information about the program, individuals who were identified by staff members as having the most potential benefit from the intervention were encouraged to attend the groups, and were given

verbal reminders of the location and time of the sessions. Some of these participants were also accompanied to the sessions by staff members.

This encouragement may have influenced the participation of subjects who may have not otherwise remembered to attend. The cognitive status of some participants may have impacted the results of this study. Participants in the comparison group were recruited following another activity and immediately following mail delivery, both of which require a certain level of awareness.

Many of the participants in the experimental group stated that they did not recall discussions from the first session. One individual was unable to recall if she attended the first session at all. The participants' ability to learn new information is a key factor in modifying behaviors to improve self-efficacy, so this may have also impacted the data collected. The individuals who would have been unable to remember having attended, or materials discussed, may have demonstrated lower self-efficacy for performing ADLs without falling at a baseline level in relation to the participants of the comparison group. Additionally, these individuals are not likely to have the ability to carry over new information, as was required for this program to be successful.

Attrition was another limitation to this study because participants in the experimental group were asked to attend two sessions prior to taking the survey. This appeared to be difficult for some participants, due to schedule conflicts, health issues, loss of interest, or memory deficits. The researcher feels that it was necessary to provide two sessions for the experimental group to not only provide participants with adequate information, but also to enable them time to practice learned techniques.

Attrition was one cause of the small sample size, but there were not enough participants in the experimental or comparison groups for this study to be sound. The goal of the researcher was to obtain seventy-five participants in each group. The student researcher planned and implemented several approaches to ensure a large sample size, but residents of the facilities attended at lower than expected levels. According to the activity directors, the number of participants for these sessions was above average for other activities. The researcher attempted to provide this program to other facilities, but these facilities were not able to accommodate this request.

The location of the experimental group at Rosehaven Apartments was also a limitation. There was another activity scheduled at the same time as the intervention for both sessions, and the groups were held in the movie theater of the apartment complex because the activity room was occupied. This did not provide adequate room for participants to split into smaller groups or to practice with the adaptive equipment to improve skills and increase confidence in proper use of this equipment. The researcher requested another room for the groups, but none was available.

Recommendations

For future studies, this type of intervention may be better suited for individuals living independently in the community. Participants living in their own home or an apartment facility that is open to individuals of any age are required to complete tasks that are more complex than those living in apartment complexes exclusively for senior citizens. This may increase the likelihood that participants are truly independent with self-care and able to learn new information, which is critical for this program to be effective. A community center may provide an environment conducive to practicing with equipment while promoting participation.

This study may have been more effective using a pretest/posttest design to better determine the relationship between self-efficacy and the program intervention because it is difficult to

determine the relationship between the variables if the comparison and experimental groups are very different in baseline levels of self-efficacy.

If future researchers have more resources, tests to determine the participants' ability to learn new information may be beneficial. The student researcher still believes that it is important to provide participants with opportunities to practice learned techniques prior to taking the survey.

Studies that are shown to help increase self-efficacy for ADL performance without falling can be given to older adults at senior centers, community centers, churches and other organizations to improve quality of life and maintain independence. Previous studies have shown the importance of self-efficacy for task performance and maintaining quality of life. Although this study was not able to reject the null hypothesis, it provided a framework for other studies of an intervention that may have positive results when shared with participants who are more independent in the community.

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Appendix A

Falls Efficacy Scale

Tinetti et al.

On a scale from 0 to 10 with zero meaning not confident/sure at all, 5 being fairly confident/sure, and 10 being completely confident/sure, how confident/sure are you that you can do each of the following without falling:

IF "R" PHYSICALLY UNABLE TO DO ACTIVITY CONTINUE TO PROBE FOR A RESPONSE AND ASK IF THEY WERE ABLE

(Repeat For Each Activity) How confident/sure are you that you can (ASK ACTIVITY BELOW) WITHOUT FALLING?

	Not confident/ Sure at all		Fairly confident/sure		Completely confident/sure		REF	DK						
1. Clean house (e.g. Sweep or dust)	00	01	02	03	04	05	06	07	08	09	10	97	98	(8)
2. Get dressed and Undressed	00	01	02	03	04	05	06	07	08	09	10	97	98	(10)
3. Prepare simple Meals (not involving Carrying hot or Heavy objects)	00	01	02	03	04	05	06	07	08	09	10	97	98	(12)
4. Take a bath or Shower	00	01	02	03	04	05	06	07	08	09	10	97	98	(14)
5. Simple Shopping	00	01	02	03	04	05	06	07	08	09	10	97	98	(16)
6. Get in and out Of a chair	00	01	02	03	04	05	06	07	08	09	10	97	98	(18)
7. Go up and down Stairs	00	01	02	03	04	05	06	07	08	09	10	97	98	(20)
8. Walk in neighborhood	00	01	02	03	04	05	06	07	08	09	10	97	98	(22)
9. Reach into cabinets/closets	00	01	02	03	04	05	06	07	08	09	10	97	98	(24)
10. Hurry to answer the telephone	00	01	02	03	04	05	06	07	08	09	10	97	98	(26)