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Feature Article

Mitigating fall risk: A community fall reduction program

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ABSTRACT

One fourth of all American's over 65 years of age fall each year. Falls are a common and often devastating event that can pose a serious health risk for older adults. Healthcare providers are often unable to spend the time required to assist older adults with fall risk issues. Without a team approach to fall prevention the system remains focused on fragmented levels of health promotion and risk prevention. The specific aim of this project was to engage older adults from the community in a fall risk assessment program, using the *Stopping Elderly Accidents, Deaths & Injuries* (STEADI) program, and provide feedback on individual participants' risks that participants could share with their primary care physician. Older adults who attended the risk screening were taking medications that are known to increase falls. They mentioned that their health care providers do not screen for falls and appreciated a community based screening.

Aging is a dynamic process and presents unique challenges both for the older adult and for the healthcare provider.[1] The attention to problems experienced by older adults, which can cause morbidity and mortality or decrease function and quality of life, has increased due to the aging population in the US.[2] To effectively manage these distinct problems, a team approach to health promotion and disease prevention that focus on the needs of the older adult is required.[3]

Challenges to providing adequate care to older adults are increasing as the population ages and life expectancy lengthens. The Administration on Aging estimated that in 2014 14.5% of the population or one in seven people in the US was over 65.[4] The US Census bureau speculates that this number will continue to rise until 17.8% of the US population is over 65 years of age.[5] The fastest growing group of older adults are those in the category of oldest-old, or those above 85 years old. This group has increased to 26.4% of the total number of older adults in 2010 and is expected to continue to grow rapidly with more adults living over 100 years.[6] These statistics can be compared to the population over 65 year of age in1900 which was at 4%; therefore a child born in 2014 will live an average of 30 years longer than a child born in 1900.

Increases in longevity escalate the risk for geriatric related problems such as falls.[7] As the oldest-old experience decreases in strength and balance, decreased visual acuity, and require more assistance to complete activities of daily living, the number of falls and the sequela that accompanies falls risk. Therefore, fall risk assessment and interventions to mitigate falls in this population are essential aspects of health promotion and disease prevention.

Falls are a common and often devastating events that can pose a serious health risk for older adults[8]; Dionyssiotis, 2012). Falling and fear of falling can cause physical and psychological problems in older adults and can increase morbidity and mortality in this group.[9] Geriatric practitioners have labeled falls as a geriatric syndrome, one of a group of clinical conditions related to older adults that does not fit into a disease category. The United States Centers for Disease Control and Prevention found that one fourth of all Americans over 65 years of age fall each year.[10] Falls in the population of older adults can often cause fracture, soft tissue injury, functional impairment, reduced quality of life, mortality and increased health care costs leading to the need for long term care.[11] Falls, as a leading cause of injury and death in older adults, have been found to bring an older adult to be treated in the emergency room every 11 s for fall related injuries.[12] More than 27,000 older adults die as a result of a fall each year,[12] The total cost of injuries in older adults related to falls in 2013 was 34 billion dollars and that number is expected to increase to 68 billion dollars by 2020.[10]

While fall prevalence among older adults is increasing, falls are not an inevitable result of aging.[13] Evidence suggests that the most effective fall reduction programs are focused on risk assessment and targeting interventions that can mitigate fall risk.[14] Among the most successful interventions are a thorough review and adjustment of disease and pharmacological treatments, exercise

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programs, footwear modification, using calcium and vitamin D to strengthen bones, correcting vision impairments, environmental inspection, and hazard reduction.[14]

Creating and implementing a successful fall risk assessment and prevention program requires an interprofessional team effort. The first step in the development and implementation of a fall risk assessment program is to create interprofessional working groups to translate evidence based strategies into a practical program. [8] found that a barrier to effective fall reduction programs was that many healthcare providers were unaware of the expertise of other healthcare professionals such as physical therapists, nurse practitioners and pharmacists. Many health providers were not aware of the benefits of referrals to these professionals when attempting to reduce the incidence of falls among the older population. While office based healthcare providers are often unable to spend the time required to assist older adults with balance, pain, and other fall risk issues; other providers using either individual or group sessions can make an impact on this problem. The continued barriers to a team approach to fall prevention creates fragmented levels of health promotion and risk prevention in this area.

The purpose of this project was to create and evaluate a fall risk assessment using the *Stopping Elderly Accidents, Deaths & Injuries* (STEADI) program from the Centers for Disease Control and Prevention. In order to appropriately implement this project an interdisciplinary team of students and faculty from the disciplines of nursing, physical therapy, pharmacy, and social work was created.

Background

In a review of the literature,[15] found that the most common risk factors for falls in older adults included impaired balance and gait, polypharmacy, and a history of previous falls. Other factors from this literature review that often influence fall risk include age, female gender, visual impairment, cognitive decline, and environmental factors.

There is now strong evidence that structured fall-preventive programs for the elderly, especially for those older adults with high-risk for falls, are beneficial in reducing both the number of people who experience falls and the number of falls in community.[7] In a systematic review of programs for fall prevention [16] found that successful implementation of fall prevention programs required leadership support, guidance of the prevention program by a multidisciplinary group, and education of participants in the risk assessment evaluation techniques. Using a review of the literature,[2] theorize that healthcare should focus on refining measurements of health, functioning and disability in older adults to create evolving patterns that meet the needs of the older adult population and reduce health care costs.

The fall risk assessment program used in this project was the *Stopping Elderly Accidents, Deaths and Injuries* (STEADI) program developed by the Centers for Disease Control and Prevention. The program was published in 2014 after reviewing evidence and outcomes from various fall risk assessment and fall prevention programs. The program was constructed from the American and British Geriatric Societies Clinical Practice Guidelines (2012). Included in the strong recommendation from these guidelines are:

- A multifactorial fall risk assessment should be followed by directed interventions tailored to the identified risks,
- The most common interventions efficacious for fall reduction are:
  - Modification of home environment to reduce hazards,
  - Withdrawal of Psychoactive medications,
  - Exercise to increase balance, strength and gait training,
  - Vitamin supplements of 800 IU of vitamin D per day for those with a Vitamin D deficiency.

The STEADI program is aimed at preventing falls and allowing older adults to remain independent. The CDC created the STEADI program to be used by primary care providers and community based organizations for community dwelling older adults. The STEADI risk assessment tool was selected for project because it is based on strong evidence related to the factors that cause falls in the elderly and the most effective way to assess these factors in community dwelling older adults. Other benefits derived from using the STEADI were that the program provides excellent educational handouts, assessment tools and data collection materials.[17]

The STEADI program sets forth an algorithm of steps in fall assessment to be used by healthcare personnel to determine fall risk among older adults. The first is to ask three questions: “in the last year have you fallen; if you have fallen how many times did you fall and were you injured”, “do you feel unsteady when standing or walking”, and “are you worried about falling”. If a patient answers no to all of these questions they are at low risks for falls. If they answer yes to any of these questions then gait, strength and balance evaluation should be completed using screening tests like the Timed Up and Go, the 30 s chair stand, or the 4 stage balance test. If the participant is unable to complete the test at the recommended level then a multifactorial risk assessment should be completed and they are at moderate to high risk for falls. Table 1 provides a detailed description of the screening test utilized in the STEADI fall risk assessment program.

The project

The specific aim of this project was to engage older adults from the community in a fall risk assessment program, using the STEADI risk assessment, and provide feedback on individual participants' risks that participants could share with their primary care physician. The project was approved by the University IRB committee. Informed consent was obtained from community participants. Student participants completed the project as part of degree requirements.

Project participants

A total of eight faculty and 31 students volunteered to participate for this project. All of the project participants were required to complete the on line STEADI training located on the CDC STEADI website, and each received a STEADI booklet from CDC with all aspects of the STEADI fall risk assessment included.

The project participants demonstrated their ability to complete a STEADI fall risk assessment evaluation on each other. All of the measures used within the STEADI guidelines are reliable and valid measures of fall risk. The validity of the TUG in patients with a history of falls was high compared to the Berg Balance and gait speed tests, with a correlation coefficient of .70.[18] The 30 s chair stand test was validated using patients who had undergone total knee replacement and demonstrated a reliability a 0.97 for measuring strength and exercise tolerance.[19]

Community participants

Community participants were recruited from the community surrounding the university using word of mouth and flyers at local pharmacies. Inclusion criteria for community participants included age 65 years of age or older; ambulatory with or without a device;