IMPLEMENTATION OF A FALL PREVENTION TOOLKIT FOR OLDER ADULT CLIENTS (65+) IN THE COMMUNITY CLINIC SETTING

by

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A DNP PROJECT

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ABSTRACT

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ABSTRACT

Problem Statement and Purpose: Falls are costly and one of the most expensive medical conditions to treat, appraised at more than $50 billion in 2015. The CDC estimates the financial burden for older adults may reach $67.7 billion by 2020 (CDC, 2019). The implementation of fall prevention toolkits (FPTs), such as fall risk screenings and fall prevention education (FPE), have become progressively important in reducing fall incidences (CDC, 2019; Olij et al., 2018). Nurses have a greater role and responsibility to care for, screen, and teach fall prevention methods to the aging population (Patton, 2018). Nurse-led FPE has also been useful in lowering fall incidences in older adults of varying fall risks (Uymaz & Nahcivan, 2016). The purpose of this project was to implement a fall prevention toolkit (FPT) (fall risks assessments and fall prevention education) to adults age 65 and older, that attended mobile IPE community clinics since there were no fall prevention assessments or education provided along with the health, social, and nutrition assessments.

Population and Setting: Participant criteria included being 65 or older, English speaking, with no exclusion for race or gender. The sample size was $n = 30$. Participants consisted of mostly women, 73.3%; Male participants consisted of 26.6%. Fifty percent of the participants lived independently in the community; 26.7% assisted living facility, and 23.3% lived in low-income housing.

Project Design: This project used quantitative pretest-posttests and an open-ended participant feedback survey.

Evidence-Based Procedure: The Missouri Alliance for Home Care 10-question survey (MAHC-10) and components of the CDC's Stopping Elderly Accidents, Deaths, and Injuries (STEADI) fall prevention education (FPE) were used to assess and educate participants on fall risks and fall prevention.

Evaluation: Initial baseline fall assessment and fall education scores were obtained at the mobile IPE clinics. Follow-up assessments occurred one month after the initial assessment and compared to the initial fall assessment and fall education scores.

Results: The mean MAHC-10 initial assessment score was $\mu = 4.87$ and the reassessment mean was $\mu = 4.83$. The "*Stay Independent*" Fall Risk initial assessment produced a mean of $\mu = 5.67$, with a follow-up mean of $\mu = 5.53$. In both fall risk assessment tools, lower scores indicated a lower fall risk; both fall risk assessment tool mean scores decreased over the one-month period.

Conclusions and Implications: Future FPE implementation projects should consider providing needed resources the participants may need so there is no delay in increasing fall prevention and safety measures. The follow-up time period should also be increased to fortify FPE, keep participants engaged in fall prevention, continue the sense of care, and reassess for issues or changes in mobility status.

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Implementation of a Fall Prevention Toolkit for Older Adult Clients (65+) in the Community Clinic Setting

Problem Background

"I've fallen and I can't get up," a memorable quote from a 1989 *Life Alert* commercial, is still recited with updated versions being aired daily. Though used to promote various emergency medical alert devices, it also highlights the dangers and incidence of falls in the older population. A report published in 2016 stated one in four older adults, ages 65 and older, fall each year (Bergen, Burns, & Stevens, 2016). In 2017, unintentional falls in persons age 65 and older were the leading cause of nonfatal injuries in the United States (US), accounting for 63.3% of the total number of unintentional falls (National Center for Injury Prevention and Control [NCIPC], 2017a). For the same time period and population, falls were the most contributing factor of unintentional injuries and the seventh leading cause of death in the US (NCPIC, 2017b). From 2007 to 2016, fall death rates in older adults increased by 30% (NCPIC, 2017b). Furthermore, the number of total fall injuries and deaths related to falls across the U.S. continue to increase each year (Burns & Kakara, 2018).

Falls are costly and one of the most expensive medical conditions to treat, costing more than $50 billion in 2015 alone (CDC, 2019). The CDC estimates the financial burden for older adults may reach $67.7 billion in 2020 (2019). As older adults continue to age, falls are more common, take longer to recover from, and cost more to treat, likely due to prolonged hospital stays (Bergen et al., 2016; Frith, Hunter, Coffey, & Khan, 2019). Declining sensory disorders [eyesight, hearing, sensation, etc.], polypharmacy, and weakness are only a few of the possible causes of falls (Frith et al., 2019).

In addition, one fall incident increases the likelihood of subsequent falls (CDC, 2019). Fall risk prevention methods are key factors in care, regarding efforts of healthcare providers and caretakers to increase the safety of the older adult as well as decrease falls and costs associated with falls. The

overarching goals of fall prevention awareness and interventions are to improve health outcomes (CDC, 2016).

Currently, Auburn University School of Nursing, Harrison School of Pharmacy, College of Liberal Arts (Social Work Department), College of Human Sciences (Nutrition Department), and Edward Via College of Osteopathic Medicine-Auburn, conduct mobile interprofessional education (IPE) community clinic visits to various sites that have an established partnership. A community social worker coordinates the mobile clinic schedules. Clinics are scheduled based on the needs of the community, so sites may change each semester. Flyers are provided at sites one week before visits to inform community members about the purpose, date, and time of the IPE clinics. The social worker also promotes the mobile IPE community clinics within the sites along with site administrators of the various site partners and community leaders.

The mobile IPE community clinic was commenced to assist older adults in the community with little or no access to healthcare. The older adult is the largest population that historically attend the clinics, as many of the clinics occur in senior centers or low-income housing units. The clinic provides free health screenings, education, and resources to clients. Involvement in the screenings and assessments are voluntary. Client medications and diagnoses are reviewed, care plans are formulated by IPE teams; however, prior to the implementation of this fall prevention DNP project, there was no fall risk assessment being completed. The assessment for clinics included questions related to health, social issues, and nutrition, but there was a noted gap as fall prevention assessments and education were not routinely provided.

The mobile IPE clinic is often the most patient-centered care provided to those that attend and many are at high risk for falls. For aging adults with possibly declining faculties, fall prevention and awareness should be assessed to decrease and possibly prevent falls. The care disparity in this

population required attention while reinforcing the necessity of the implementation of this fall prevention DNP project for older adults in the community setting.

Purpose Statement

The purpose of this Doctor of Nursing Practice (DNP) project was to implement a fall prevention toolkit (FPT) to adults age 65 and older that attended mobile IPE community clinics, in order to reduce falls and increase older adult knowledge about fall prevention. The toolkits included fall risk assessments and prevention education. The DNP student assessed fall risks by interviewing community members age 65 and older at the mobile IPE community clinics, provided education, and a one-month follow-up.

PICOT Statement

The DNP project was evidence-based, according to the development and implementation of an FPT. The FPT is intended to improve the health outcomes of older adults in the community. The PICOT question formed for this DNP project was: Does the implementation of a FPT increase fall prevention awareness in older adult clients in the community clinic setting after one month?

Review of Literature

Search Strategy

Multiple databases were investigated during a literature search concerning falls in the elderly and fall prevention using the Missouri Alliance for Home Care 10-question survey (MAHC-10) and components of the CDC's Stopping Elderly Accidents, Deaths & Injuries (STEADI) fall prevention education (FPE). Databases searched include CINAHL (via EBSCO), Academic Search Complete (via EBSCO), OVID, and MEDLINE (via PubMed). Databases were accessed using the University of Alabama in Huntsville's electronic library. Other keywords searched were *fall prevention, fall prevention toolkits, falls in the elderly, fall risk assessments, fall risk education, elderly in the*

community + falls, and older adults + fall prevention. Publication date parameters were set to publications within the past six years. The additional parameter of only full-text articles was set on some of the databases. Exclusion criteria consisted of journal articles not written in English.

Synthesis of Literature

Falls in any population can affect a persons' mobility and quality of life. In the older adult, multiple factors, including vision impairment, environmental hazards or weakness, may contribute to falls (Bergen et al., 2016). For adults age 65 and older, the estimated falls that occur each year is 29 million; the equivalent of someone age 65 and older falling each second, every single day (Bergen et al., 2016; Sarmiento & Lee, 2017). Pohl et al. (2015) collected data on a qualitative focus group regarding older community-dwelling adults and fall precautions the participants were aware of and practiced. The study advises fall risk awareness should be introduced using various strategies and should be reinforced. The same study revealed that becoming aware of one's increased fall risk can evoke different emotions in the elderly, often affecting pride and self-confidence (Pohl et al., 2015).

The aging population may have reservations speaking with healthcare providers about declining mobility and falls, but healthcare providers should be screening and assessing for fall risks annually (American Geriatrics Society, 2011; Moncada & Mire, 2017). Furthermore, healthcare providers should use fall risk scores as guidelines to decrease patient-specific fall risk problems, rather than using generic fall risk interventions (Titler et al., 2016). For instance, if a patient's fall risk assessment reveals weakness and fear of falling as a trigger, strengthening exercises and the psychological root of why there is a fear of falling should be addressed, in addition to evaluating the need for an assistive device.

Fall risk prevention awareness, assessments, and education are needed to improve healthcare outcomes in the aging population, optimally, to increase safety and decrease falls. The American Geriatrics Society/British Geriatrics Society (2011) developed clinical practice guidelines for the

prevention of falls in older persons--with the understanding that fall risk assessments are a vital element in reducing falls in the elderly population. The clinical algorithm, *Prevention of Falls in Older Persons Living in the Community* (Figure 1), outlines appropriate interventions and other determinates for older adults at risk or having actual falls (American Geriatrics Society, 2011). Many fall prevention screening, awareness, and assessment tools are now available in response to numerous fall prevention and fall reduction initiatives (Moncada & Mire, 2017). Grealish et al. (2019) suggests, based on new evidence, that the focus should be concentrated on how fall prevention guidelines are utilized in conjunction with individualized corrective measures for the older adult.

For some older adults, there is little or no perceived risk of falling; for others, there are hindrances to learn fall prevention tactics or even acknowledge a gradual decline in mobility and/or loss of functions (Bulsara, Khong, Hill, & Hill, 2016; Pohl et al., 2015). The implementation of FPTs, such as fall risk screenings, home safety assessments, and FPE, have become progressively important in reducing fall incidences (CDC, 2019; Olij et al., 2018). Research shows that multifactoral screenings and assessments are preferred, considering no single aspect may be responsible for falls, but consider multiple issues that could be [responsible for falls] (American Geriatrics Society, 2011; H. Lee et al., 2013; Stevens & Phelan, 2013). The United States Preventive Services Task Force (USPSTF) (2018) recommends clinicians and older adult patients evaluate injury versus well-being regarding fall prevention measures. The evaluation of various medical diagnoses, fall history, and patient preferences may make a difference in the success of fall prevention of these community-dwelling elders (USPSTF, 2018).

In early 2019, researchers found that propagating FPE information where older adults congregate and frequent has value and decreases barriers to learning about fall prevention (Kiami, Sky, & Goodgold, 2019). Older adults in the community setting that have received increased FPE have the

propensity to maintain independence and safer living conditions (Minnier, Leggett, Persaud, & Breda, 2019). When educating the older population about fall prevention, the association between negative fall events and positive fall prevention practices should be reiterated (Olij et al., 2019). Fall prevention screening checklists are vital initial tools in identifying at-risk individuals, but should be validated before use (Chacko, Thangaraj, & Muhammad, 2017). Lusardi et al. (2017) found that most fall prevention screening and assessment tools are predictive in identifying older adults at higher risks for falling. The most significant predictor indicators are "medical history questions, self-report measures, and performance-based measures" (Lusardi et al., 2017, p. 33).

Another recent study showed community-nurse recruitment for fall prevention activities in older community-dwelling adults, along with healthcare provider and researcher collaboration, played an integral part in the success of the study (Olij et al., 2019). Nurse-led FPE was also shown to have a greater impact on fall prevention behavior in the elderly population (Uymaz & Nahcivan, 2016). Even better results have been achieved with IPE teams collaborating with fall prevention awareness, assessments, and education implementation initiatives (McKenzie et al., 2017; Sullivan, D. Kiovsky, J. Mason, D. Hill, & Dukes, 2015; Taylor et al., 2019). Although there is no standard curriculum for teaching FPE, fall prevention awareness across all populations is a critical component. Concerning nursing care and the profession of nursing, nurses will have a greater role and responsibility to care for, screen, and teach fall prevention methods to the aging population (Patton, 2018).

Conceptual Framework

Theoretical Framework

Boykin and Schoenhofer's Nursing as Caring Theory will serve as the theoretical underpinnings for the development and presentation of the assessments, education, and follow-up interactions. This theory, a grand theory, is an in-depth analysis of what caring is, how caring has multiple meanings, and

how caring affects everyone differently (Smith & Parker, 2015). The theory includes components that can apply to any nursing circumstance or the nursing role (Smith & Parker, 2015). The nursing as caring theory has a multidimensional framework, as it integrates assumptions and components from its own theory and that of the nursing metaparadigm (Masters, 2015). The assumptions of the nursing as caring theory are based on the caring values nurses should possess and are as follows:

> Persons are caring by virtue of their humanness; persons are whole and complete in the moment; persons are caring, moment to moment; personhood is a way of living grounded in caring; personhood is enhanced through participation in nurturing relationships with caring others; and nursing is both a discipline and a profession (Smith & Parker, 2015, p. 343).

Boykin and Schoenhofer's Nursing as Caring Theory also includes the four concepts of the nursing metaparadigm; person, environment, health, and nursing (Masters, 2015). An interpretation of the combined theories is displayed in Figure 2. Each of the components of the nursing metaparadigm is distinct, but unifies collaboration? within the nursing discipline (Chinn & Kramer, 2015). To provide sufficient care, the *person* has to be regarded as a whole being, not merely identified by particular characteristics or diseases (Masters, 2015). The *environment* includes any societal stimuli, which may include other persons, places, and situations. *Health* has been considered the state of satisfactory individual welfare or the constant process to obtain health while living; both are the aim of the nursing profession (Chinn & Kramer, 2015). Lastly, *nursing* as a profession and discipline are set apart from other disciplines due to the caring aspect, the interactive nature required, and the growth in caring that occurs as an outcome (Chinn & Kramer, 2015; Masters, 2015).

Application of Theoretical Framework to Project

The tenets of the nursing as caring theory relate to the implementation of an FPT in the elderly population in various ways. The elderly may become forgetful, but they are not forgotten. The nursing

as caring theory applies to this project because the aging population is, in fact, the focus. The IPE community clinics are a means of older adults in the community gaining access to healthcare through free screenings and healthcare collaborations. The clinics also provide an environment for members of the community to congregate; "community" in a true sense of the word. Through interviewing and providing education, the DNP student, a nurse, will provide a form of caring. The follow-up phone communications in the subsequent month emphasized the notion that someone cares and is proactive in attempts to help decrease falls and increase fall risk awareness and education in the aging population.

Evidence-Based Procedure

Aim

The DNP project aimed to reduce falls and increase older adult client knowledge about fall prevention. The DNP student assessed clients, calculated baseline fall risk scores, and provided FPE using validated materials. Fall risk and education scores were reassessed during follow-up communications one month after the initial assessment.

Project Setting, Population, Sample

The project setting occurred in various community settings in Lee County, Alabama and surrounding counties. Other counties, Macon and Chambers, were within a thirty-mile radius of the University. The mobile IPE community clinics happened on Fridays in nursing homes, assisted living facilities, community centers, and other rural settings. The mobile interprofessional education (IPE) sites were partnered with Auburn University and Edward Via College of Osteopathic Medicine-Auburn. For the DNP project, participant criteria included being 65 or older, English Speaking, with no exclusion for race or gender. The sample size goal was $n = 30$ clients over the project period, which was achieved. The participants consisted of mostly women (73.3%), doubling the number of male participants, which was (26.6%). Fifty percent of the participants lived independently in the community, 26.7% lived in an

assisted living facility, and 23.3% lived in low-income housing. Physical mobility of the various participants included total ambulatory (requiring no assistance), mostly ambulatory (the use of assistive devices at times), and very limited (dependent on a motorized or manual wheelchair). The most commonly used assistive device among the 'mostly ambulatory' participants was a cardiac chair.

Design

This DNP project used quantitative pretest-posttests and an open-ended participant feedback survey. The project is considered a program evaluation in a specific type of setting (community clinics), and for a specifically aged population.

Intervention

The intervention for this project was the implementation of fall risk assessments and fall prevention education to older adults that attended IPE community clinics. The mobile IPE community clinic visits were scheduled, and the DNP project advertised weeks in advance of actual IPE mobile clinics to gain possible participant interest. This was accomplished by displaying flyers (Appendix C) with project information in the various facilities 1-2 weeks before implementation. Some word of mouth recruitment also occurred at the mobile IPE clinical sites.

Upon arrival at the mobile IPE community clinical sites, interest was confirmed with self-identified participants who met the inclusion criteria. Prior to visits to the clinical sites, FTP packets were prepared, which included the consents, assessments, and educational resources. If the inclusion criteria were met, the participants were read the informed consent script regarding the DNP project. All interested parties were provided instructions and signed an informed consent form (Appendix D). Participants also provided contact information for follow-up communication. Participants were assigned by the number in which their assessment occurred. Each participant was ushered to a quiet area by the DNP student in order to provide privacy during the implementation of the FTP.

Once the participants were seated and ready to proceed, the first fall risk assessment, the MAHC-10 (Appendix E), was evaluated. Once the individual baseline fall risk scores were obtained via the MAHC-10 assessment, a self-reported fall prevention safety education assessment, "*Stay Independent*" (Appendix F), was completed and calculated. Comparisons between the two fall risk assessment types will be discussed later. Next, a fall safety checklist with safety guidelines "*Check for Safety*" (Appendix G), were reviewed with the participants. Each question yielded an intervention to improve fall prevention safety and knowledge. For areas of improvement based on the "*Check for Safety*" guidelines, more time was spent teaching the participants how and why certain changes were needed to improve their safety.

Lastly, a fall prevention educational pamphlet, "*What You Can Do to Prevent Falls*" (Appendix H) was also reviewed and given to the participants to keep for reference. "*What You Can Do to Prevent Falls*" was read to the participants and specific areas of improvement were circled on the pamphlet. The participants were notified of exercises, such as Tai Chi and yoga, to improve balance and strength. The DNP student emphasized the importance of the participants slowing down and making intentional movements, like counting to three between taking steps. Each project participant session took 30-50 minutes depending on participant need. Participants were given a copy of the informed consent for reference and contact information for the DNP student and Institutional Review Boards in case there were questions or concerns after the intervention. Figure 3 depicts the initial DNP project process.

One month after the initial assessment, the two fall risk assessments were re-administered and the "*Check for Safety*" guidelines re-evaluated to assess if suggested improvements were made by the participants. The project-specific five-question follow-up survey (Appendix I) was also completed during the follow-up. The follow-up questions requested additional information regarding changes the participants may have made since the FPE, as well as their evaluation of the FPE provided.

Instruments

The first instrument that was used in this DNP project is the Missouri Alliance for Home Care 10-question survey (MAHC-10) (Appendix E). The MAHC-10 was developed to assist home health agencies' compliance with Centers for Medicare and Medicaid Services' (CMS) Outcome and Assessment Information Set Criteria (OASIS-C) for home health patients (Calys, Gagnon, & Jernigan, 2012). The MAHC-10 is multifactorial, standardized, and has been validated as a single tool to assess fall risks (Missouri Alliance for Home Care [MAHC], 2012). The validation study was a 2010 (July-October) four-month retrospective review of nine home health agencies located in Missouri. The sample size for the study was $n = 2247$. The MAHC-10 includes a fall risk assessment tool (survey), a fall report form, and a Microsoft Excel data entry form (MAHC, 2012).

The 10-question assessment tool requires information such as age, comorbidities, medical, and fall history. A numerical value was assigned for each question. The tally of the questions is combined, resulting in the MAHC-10 fall risk score. The fall prevention benchmarking initiative was tested in 2010. The construct validity of MAHC-10 differentiates between "fallers" and "nonfallers" (Calys et al., 2012). Also, on the MAHC-10 fall prevention tool, "prior history of falls" is defined as, "An unintentional change in position resulting in coming to rest on the ground or at a lower level" (MAHC, 2012). The fall risk factors are consistent with the literature (Calys et al., 2012). "Fallers," individuals that are high-risk for falls, are considered to have a fall risk score of 4 or more (Calys et al., 2012; MAHC, 2012). However, researchers suggest that each agency alters the fall risk score for their specific needs and indications. Individuals with scores of less than four were less likely to fall according to their medical histories and MAHC-10 assessments (Calys et al., 2012).

The next instruments to be used in this DNP project, "*Stay Independent*, "*Check for Safety*", and "*What You Can Do to Prevent Falls,*" are components of the Center for Disease Control and

Prevention's STEADI initiative. The STEADI initiative was designed specifically for healthcare providers that cater to the older populations, which is especially important for patients who have fallen or are at risk for falling (R. Lee, 2017). The three essential STEADI components are screening, assessing, and appropriate interventions (Centers for Disease Control and Prevention [CDC], 2016). The CDC's intent with the STEADI initiative was to develop varying levels of resources for healthcare providers, resulting in improved health outcomes in the older adult (CDC, 2016).

The STEADI fall prevention toolkit offers a wide range of fall prevention materials that are free to use, customizable, and may be downloaded. There is also an option to purchase components of the toolkit, printed by the CDC, instead of downloading and printing on-site. Materials include fall prevention screening materials, teaching materials, care planning booklets, fact sheets, checklists, and exercise pocket guides. Anyone may use any part of the toolkit or the entire toolkit at the discretion of the user. The CDC also offers training classes on how to implement STEADI into practice as well as case studies and "Frequently Asked Questions" on the website.

For this DNP project, the following STEADI components were utilized: a self-reported fall prevention safety education assessment, "*Stay Independent*" (Appendix F), a fall safety checklist with safety guidelines, "*Check for Safety*" (Appendix G), and a fall prevention educational pamphlet, "*What You Can Do to Prevent Falls*" (Appendix H), which the participants will keep. "*Stay Independent*" is a validated self-risk assessment brochure that brings awareness to risks of falling. The "yes" and "no" questions translate to numerical values to be tallied. Like the MAHC-10, a fall risk score of 4 or greater indicates a higher fall risk. "*Check for Safety*" is a home safety brochure that aids in identifying and correcting potential fall risks in the home setting. "*What You Can Do to Prevent Falls*" is an additional informational brochure that includes effective strategies to prevent and/or reduce falls (CDC, 2016).

The STEADI initiative and materials were tested extensively for validity and reliability by various healthcare providers and using various methods, such as interviews and focus groups. Members of the focus group (n = 18) commented on how useful the tool was because the initiative did not focus on the patients only after falls, but is useful as a preventative measure for falls (Stevens & Phelan, 2013). The STEADI materials were found to be valid and considered to demonstrate empirical evidence in a 2017 study that used the 2011-2015 National Health and Aging Trends Study data. The sample size in the aforementioned study was n = 7,392 and consisted of adults age 65 and older (Lohman et al., 2017). Additionally, the STEADI initiative follows the *American and British Geriatrics Societies' Clinical Practice Guidelines* (CDC, 2016).

The project-specific, five-question follow-up survey (Appendix I) was developed by the DNP student with input from the DNP project chair and DNP mentor. The survey was completed during the follow-up phone call with participants. The follow-up questions requested additional information concerning possible changes the participants made after the FPT implementation, if they had fallen since the FPE, as well as their evaluation of the FPE provided. The last question on the survey, "Is there anything else you would like for me to know," allowed for participants to express additional feelings and concerns regarding fall prevention awareness, safety, and knowledge.

Data Collection

All data were collected by the DNP student. Data and forms were transported by the DNP student in a locked travel bag. No identifiable information was included during the data analysis. All data were systematically logged on paper forms, tabulated, and evaluated using descriptive statistics and parametric analysis (interviews and questionnaires). The data were entered in the *Statistical Package for the Social Sciences* (SPSS) version 24. Completed surveys and informed consent were placed in a

locked file cabinet in the DNP student's office. The previously mentioned documents will be retained and accessible only by the DNP student for five years.

One objective of this DNP project was to assess 30-50 older adult clients (65+) during mobile IPE community clinics and establish a baseline fall risk score using the MAHC-10 component of the fall prevention toolkit (FPT) (Appendix C). The MAHC-10 assessment tool was administered upon recruitment, after consent was obtained from participants. The MAHC-10 fall risk assessment requested information such as the patient's age, medical, and fall history. Points were assigned for each assessment question. The numerical total of the points for each MAHC-10 assessment was the baseline fall risk assessment score. The numerical total of the points for each *"Stay Independent"* checklist, was the baseline FPE score.

The second objective was to increase fall prevention knowledge by 15% of the baseline score within one month, using the STEADI-FPE components of the FPT via a follow-up phone call. After one month, follow-up phone communication with participants occurred. The DNP student communicated with the participants using the contact information given during the initial assessment. Participants were queried by reassessing the MAHC-10 fall risk and the *"Stay Independent"* self-reported checklist. Scripted follow-up questions were also asked (Appendix I).

Various community clinic sites were visited over different weeks. The one-month follow-up calls occurred on a rolling calendar based on the date of the initial assessment. The first mobile IPE clinic day was August 30, 2019. The cut-off date for obtaining participants for the DNP project was October 11, 2019, creating the DNP project assessment completion date of November 8, 2019. Over the six-week project period, 33 participants were obtained for the initial assessment and FPE. Of the 33 initial participants, 30 were available for the reassessment and follow-up questions.

Data Analysis

Statistical analysis of the project data (quantitative) was conducted using SPSS Version 24. The baseline fall risk assessment scores, FPE scores, and descriptive statistics were entered and analyzed in SPSS. After the follow-up phone call, new scores were tabulated, entered into SPSS, and analyzed. After computing the differences between the pretest and posttest scores for both the MAHC-10 and *"Stay Independent"* assessments (*diff = posttest - pretest*), a histogram with a normal curve was plotted for this difference (*diff*) of each assessment type. Two symmetrical (bell-shaped) normal curves for *diff* were produced, thus satisfying this criterion.

Paired *t-test* for dependent groups was completed. Pre- and posttest fall risk assessment scores and FPE scores determined the outcome measures of (a) the number of participants assessed for fall risks; (b) the fall risk scores (baseline and follow-up), and (c) fall prevention education/knowledge scores (baseline and follow-up). The paired *t*-tests samples statistics for the fall risk assessments revealed the results shown in Table 1. Table 2 demonstrates the paired-samples *t*-tests results for both assessments.

Table 1

Paired Samples Statistics for the MAHC-10 and "Stay Independent" Fall Risk Assessments

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	MAHC-10 Fall Risk Initial Score	4.87	30	1.978	.361
	MAHC-10 Fall Risk Reassessment Score	4.83	30	1.821	.332
Pair 2	Stay Independent Fall Risk Score	5.67	30	3.977	.726
	Stay Independent Fall Risk Reassessment Score	5.53	30	4.158	.759

Note. Prior to the FPE, the participants' overall MAHC-10 score was ($\mu = 4.87$ (SD = 1.978)); after receiving FPE, that level decreased to ($\mu = 4.83$ (SD = 1.821)) in a months' time. This is a 0.157 reduction (improvement in the overall mean score). Prior to the FPE, the participants' overall "Stay Independent score was ($\mu = 5.67$ (SD = 3.977)); after receiving FPE, that level decreased to ($\mu = 5.53$ (SD = 4.158)) in a months' time. This is a 0.14 reduction (improvement in the overall mean score).

Table 2

Paired Samples Test for the MAHC-10 and "Stay Independent" Assessments

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	MAHC-10 Fall Risk Initial Score- MAHC-10 Fall Risk Reassessment Score	.033	.414	.076	-.121	.188	.441	29	.662
Pair 2	Stay Independent Fall Risk Initial Score - Stay Independent Fall Risk Reassessment Score	.133	.629	.115	-.101	.368	1.161	29	.255

Note. A statistically significant difference is present if the $pp \leq .05$. The 0.157 mean reduction in the MAHC-10 fall risk assessment is statistically insignificant since the *p*-value of 0.662 is greater than the specified α level of .05 *(p = .662, α = .05)*. The MAHC-10 paired *t*-test *(.441 = p = .662)* using a .05 alpha level also supports the fall prevention education to be statistically insignificant; suggesting that the education had little or no effect on the participants' reassessment answers. The 0.157 mean reduction in the *"Stay Independent"* fall risk assessment is statistically insignificant since the *p*-value of 0.255 is greater than the specified α level of .05 *(p = .255, α = .05)*. The *"Stay Independent"* paired *t*-test *(1.161 = p = .255)* using a .05 alpha level also supports the fall prevention education to be statistically insignificant.

Findings

The overall scores of the thirty participants that completed both the initial and follow-up assessments did not change significantly in one month. The mean MAHC-10 initial assessment score was $\mu = 4.87$ and the reassessment mean was $\mu = 4.83$. The "*Stay Independent*" Fall Risk initial assessment produced a mean of $\mu = 5.67$, with a follow-up mean of $\mu = 5.53$. In both fall risk assessment tools, lower scores indicated a lower fall risk; both fall risk assessment tool means decreased over the project period.

Upon reassessment via the follow-up phone call, a specific question regarding recent falls was used to evaluate if client falls decreased and to what degree, by comparing the baseline and reassessment scores. The question asks if there has been a fall in the past three months. In the initial assessment, six of the 30 participants admitted to falling in the past three months. There were six reported falls in the three months prior to the project and two reported falls in the one month following the education. Because of the difference in time periods, no conclusion can be drawn.

The home safety brochure, "*Check for Safety,*" (Appendix G) aided in identifying potential fall risks in the home setting and guided individualized teaching points for the participants in this DNP project. Many of the questions focused on if there were stairs in the dwelling, how well-lit were the commonly used areas, and possible environmental hazards. During the follow-up phone call, specific areas of concern were reassessed to note any changes and improvements in the home environment. For example, for the question, "Do you have throw rugs on the floor," participants were educated on removing the rugs or obtaining non-skid mats to go under them and explained why the rugs are a fall hazard. While none of the "*Check for Safety*" questions demonstrated statistical significance per the paired samples correlations, one of the questions produced noteworthy safety improvements; "Is the light near the bed hard to reach." Participants were educated on possibly moving the lamp closer,

keeping a flashlight near them to prevent straining, purchasing a battery-operated portable LED light, or utilizing a nightlight to provide additional visibility.

Additionally, a five-question follow-up survey was completed after the reassessments and knowledge scores (Appendix I). The questions revolved around changes the participants made, if any, and if there were suggestions to improve the delivery of information. Twenty-eight of the thirty participants responded they had not fallen since the FPE and two participants had fallen. Of the six participants that had fallen within the three months before the initial assessment, none of the initial six participants had fallen since the baseline assessment and education.

Interestingly, though both fall assessment tools were developed by different entities, both use a score of four or greater to indicate fall risks. This unique DNP project produced comparisons between the two fall-risk assessment types and measured the accuracy of the tools. The most notable difference between the two assessment types was the MAHC-10 focused almost solely on concrete medical information and the "*Stay Independent*" assessment included other factors such as perceptions of unsteadiness, fear of falling, as well as feelings of depression. Both the MAHC-10 and *"Stay Independent"* scores for the initial six participants that had fallen were above four, indicating a higher risk for falls; however, neither of the assessment tools indicated a fall risk score (a score of four or above) for the two participants that fell after the FPE.

The findings of this project, with this population, were consistent with the current literature. A merging of the two fall risk tools utilized, MAHC-10 and STEADI, or one that incorporates individual medical information and perceptions may be optimal for this type of project. Nithman and Vincenzo (2019) also used the STEADI fall risk toolkit in community-dwellers and noted the difficulty in the tool identifying fallers. In the same study, the recommendation was also made that multiple tools be used for identifying fall risks in individuals. Callis (2016) identified twenty significant fall risk factors and

determined that there is not a comprehensive fall risk tool that addressed them all. Though both the MAHC-10 and STEADI provided valuable information to indicate fall risks, a fall risk assessment tool that does not mutually exclude medical information and/or personal perceptions may be better suited for this type of project. A more comprehensive tool would take both types of factors listed previously into account and possibly capture those who do not fall in the fall risk category in the two different types used in this DNP project.

According to participant feedback collected in the follow-up assessments, many participants voluntarily stated that they enjoyed the follow-up assessment and conversation. One of the faculty involved in the mobile IPE clinic conducts two-week follow-ups. Therefore, the participants involved in the mobile IPE clinics and the FPE Implementation DNP project received two follow up assessment phone calls in a month. The participants said the follow-ups gave them a true sense that someone cares about them and they are somehow being "looked after." Some participants even relayed that they also improved their behavior because they knew there would be a follow-up and wanted to be able to give a good report. Follow-ups over a longer period may create the desire to continue the "good reports" and affect fall prevention and safety for older adults in the community. Radulescu, Daniel, and Niv (2016) cite other research and reiterate positive reinforcement reward systems, [in the case of this project, follow-up phone call assessment, and conversation], continue to play a role in behavior changes.

Discussion

There are many concentrated research efforts focused on fall prevention and fall safety in older adults. Mobile IPE community clinics require support and efforts from multiple stakeholders including the University, community partners, and community members. This DNP project continued these efforts and discovered additional factors to help make fall prevention education implementation projects successful. A fall risk assessment and a self-risk assessment, both validated, were used to calculate fall

risk scores in the older adults that attend the mobile IPE community clinics. The older adults in the community were assessed for fall risks, educated on how to prevent falls, and how to make their homes safer. Auburn University's IPE program observed the benefit of the FPE and are considering implementing their own fall prevention initiative, possibly using components of this DNP project.

Implications

Only one mobile IPE clinic occurred before realizing key elements that would have made this DNP project more effective: necessary resources and additional time. During the initial assessments and education, participants were encouraged to obtain essential resources to increase their safety and prevent falls, as guided by the "*Check for Safety*" list. Many of the participants fell in the low-income economic category and qualified for low-income housing, hence the need for free assessments by the mobile IPE clinic. During the follow-up assessment and questionnaire, the participant feedback revealed some participants could not improve fall safety in their home environment. Materials, such as non-skid mats or double-sided tape for rugs or portable lights to increase visibility, were not purchased because some participants did not have the resources to obtain them. Resources include monetary funds, devices, as well as transportation to attain the devices. Future projects could also include grant funding. Having resources on hand to provide the participants during the initial assessments may have led to a greater impact in this population by ensuring the resources were received and possibly, improve health outcomes indicated by fewer falls.

Additional time is needed to continue projects of this type. Along with the conversation and educational components of the project, increased time may have allowed for supplementary interventions such as demonstrations of safe balance and strengthening exercises. Where possible, group exercise sessions by certified instructors, focusing on balance and strength, could have produced a project with increased efficacy. Following up with the participants in three months and asking about

their recall of falls after the education was provided would also be beneficial. Figure 4 depicts the proposed revision of the DNP project process.

A 2017 study determined that assisted living communities and facilities should utilize fall prevention protocols and flowcharts to decrease falls in their residents (Coughlin, Nordman-Oliveira, Schlaak, & Ford Ii, 2019). Two of the initial six fallers lived in an assisted living facility [26.7% of the project participants] possibly indicating improved fall prevention measures of the facility, as indicated in the Coughlin et al. (2019) study. One of the assisted living facilities where participants resided, offered fall alert/alarm devices and mandated that all bathroom shower and toilet areas had handrails installed. The researchers agree that additional exploration is needed in developing and implementing a falls prevention process that is comprehensive enough to decrease falls for all (Coughlin et al., 2019).

Results from this project indicate more studies are needed to develop a comprehensive fall risk assessment and intervention tool that can be used for all ages, especially the older adult. The data showed various participants with similar fall risk scores to be fall risks for different reasons. A score of five on the MAHC-10 could be due to age, previous falls, polypharmacy, stroke, and the need to wear glasses; whereas the same score of five on STEADI's "*Stay Independent,"* could be the result of previous falls, using an assistive device, and worrying about falling.

The CDC's STEADI comprehensive tool kit for health care professionals includes many components, such as screening tools, assessments, balance tests, and referral forms, but were not implemented in this project due to time restrictions. While using two assessment tools for this project, future data collection will include a more inclusive assessment tool including medical history, co-morbidities, previous falls, polypharmacy, psychological and psychosocial issues, access to resources, with appropriate interventions and continuous follow-up. Another important aspect of the comprehensive assessment tool would be one that categorizes the levels of risk. For example, scores 0-3

low fall risk, 4-7 medium, and 8-12 high, with increased interventions and prevention measures implemented with increasing scores, much like STEADI's screening tool. As a result, identifying those at higher risks for falls could occur sooner and interventions, faster.

Limitations

Project implementation and mobile IPE clinics occurred in a small region in Alabama and findings may not be generalizable to the public or other similar participant groups. Ideally, the sample size would be larger. There were 33 initial participants, but three were excluded from follow-up due to the inability to contact them. More thorough assessments could have occurred if access was granted to visit the actual living space of the participants. Additional limitations that impacted this DNP project and the participation rate were the brief follow-up period, IPE setting and time allotment, additional interventions, longer duration of the IPE clinics, age limitation, time of day, weather, and specific dates.

Due to DNP project time constraints, significant changes about decreased falls were difficult to measure. The brief follow-up period with participants was one month, which was not adequate time to assess significant changes regarding decreased falls in this population. Following the assessment and evaluation of FPE scores, education was the intervention. Although participants were educated and given information via the CDC (2017) pamphlet, *"What You Can Do to Prevent Falls",* on the importance of balance and strengthening exercises, these exercises could have been demonstrated given more time. Future projects could have incorporated exercise sessions with a trained professional as an intervention with additional assessment pre and post this intervention.

The setting and time of the mobile IPE clinics was a limitation that could not have been predicted. The IPE clinics occurred once a week for a few hours and each participant session took 30-50 minutes, contributing to the time constraints for these additional interventions. More frequent clinics or longer clinic hours could solve this constraint. The setting and time of the clinics were also restricted by

the IPE faculty that run the clinics. The IPE faculty clinic organizers plan the clinics during times all involved disciplines can attend, each with a group of students. Training and educating IPE faculty members of other disciplines about the FPT was similarly hindered by time, but could have contributed to a more significant DNP project and likely, a larger sample size. Future planning could include buy-in from the other IPE faculty stakeholders. Therefore, the project, like the clinics, would be interprofessional and valuable to all.

Since the mobile IPE clinics occurred in some low-income housing developments, some individuals may have benefited from the FPE that did not meet the age requirement of 65 or older. Some participants felt the IPE mobile clinics occurred too early in the day, which may have resulted in the low turnouts at some of the sites. The weather was unpredictable months ahead of the IPE clinical time, therefore rainy days may have resulted in a lower turnout. The lowest participation turnout day for the mobile IPE clinic and the DNP project occurred on Friday the 13th. One of the participants who had been involved in the clinics in the past recognized the lower turnout as well and provided a possible rationale, "Oh, some are very superstitious over here. They won't even come out of their house today so nothing bad will happen to them."

Conclusion

Falls are more common and more costly as one ages. Especially, in the older adult, once a fall occurs, there is an increased likelihood that another fall will ensue. Fall prevention and awareness should be assessed to decrease and possibly decrease falls in all ages. The mobile IPE community clinics provided health, social, and nutrition assessments, but none were specific in addressing fall risks or education. The purpose of this DNP project was to implement a fall prevention toolkit (FPT) to adults age 65 and older, that attended mobile IPE community clinics since there were no fall prevention assessments or education being provided in conjunction with other assessment types. Two validated fall

risk assessment tools were utilized, the MAHC-10 and the CDC's STEADI. Fall risks were assessed by interviewing community members age 65 and older at the mobile IPE community clinic sites. The DNP project was evidence-based, according to the development and implementation of a FPT, with the intent of improving the health outcomes of the older adults in the community. The overall scores of the thirty participants that completed both the initial and follow-up assessments did not change significantly in one month. Following up with the participants in three months and asking about their recall of falls after the education was provided would also be beneficial. Continued follow-ups, reinforcement of FPE, and resource availability would be key in enhancing this type of project. This project was designed to be replicated in other populations/areas. Additional studies using multiple fall risk assessment tools combined with FPE and interventions are needed to determine if the combination is beneficial.

Projected Timeline

Once the DNP student passed the Project Implementation Review, the proposed DNP project was submitted to the Institutional Review Board (IRB) of the University of Alabama in Huntsville (UAH). After approval from UAH, the DNP project was submitted to the IRB of Auburn University with the approval documentation from UAH, which expedited the process at Auburn University. The projected timeline for this DNP project was four months (see Figure 5). The IPE clinics started mid-August and initial fall risk assessment and education occurred by October 11, 2019. Considering the one-month follow-ups that occurred on a rolling calendar, November 8, 2019, was the last possible date for data collection. Data analysis ensued after data collection completion.

Professional Journal Selection

The professional journal selected for DNP project dissemination is *The Gerontologist.* The impact factor was 1.837 per The Gerontological Society of America. *The Gerontologist* is a bi-monthly, peer-reviewed journal and the official journal of the Gerontological Society of America. The journal

publishes quantitative and qualitative research. The journal is also indexed in Medline, ISI, and CINAHL (Gerontologist, 2020). For full Author Guidelines for *The Gerontologist*, see Appendix J.

Scope of Journal

The Gerontologist is a comprehensive source for clinical information and management advice relating to the care of older adults. The journal is multidisciplinary and offers opportunities for collaboration, networking, and mentorship. The journal thrives from researcher engagement interaction from a variety of disciplines related to aging. *The Gerontologist's* peer-reviewed articles report the latest developments in the management of acute and chronic disorders of older adults across the long-term continuum (Gerontologist, 2020).

The Gerontologist promotes and studies scientific information related to the process of aging. The journal accepts a variety of manuscript types ranging from research articles, forums, and brief reports. *The Gerontologist* is committed to providing timely information on caring for older adults and the process of aging. The journal also reports clinical findings that are applicable to practice across the various disciplines (Gerontologist, 2020). See Appendix J for Complete Instructions for Authors.

The Effect of a Nurse-Led Implementation of a Fall Prevention Toolkit for Older Adults in the Community Setting

ABSTRACT

Background and Objectives: Falls are costly and one of the most expensive medical conditions to treat. The implementation of fall prevention toolkits (FPTs), such as fall risk screenings and fall prevention education (FPE), have become progressively important in reducing fall incidences. Nurses have a greater role and responsibility to care for the aging population. The purpose of this project was to implement a FPT to adults age 65 and older that attended mobile IPE community clinics.

Research Design and Methods: This project used quantitative pretest-posttests and an open-ended participant feedback survey. The Missouri Alliance for Home Care 10-question survey and components of the CDC's Stopping Elderly Accidents, Deaths, and Injuries (STEADI) FPE were used to assess and educate participants on fall risks and fall prevention. An initial baseline fall assessment and fall education score was obtained at the mobile IPE clinics. Follow-up assessments occurred one month after the initial assessment and compared to the initial fall assessment and fall education scores with an additional open-ended participant survey.

Results: In both fall risk assessment tools, lower scores indicated a lower fall risk; both fall risk assessment tool mean scores decreased over the one-month period.

Discussion and Implications: Future FPE implementation projects should consider providing needed resources the participants may need so there is no delay in increasing fall prevention and safety measures. The follow-up time period should also be increased to fortify FPE and keep participants engaged in fall prevention safety.

Key Words: *Fall Prevention, Older Adult, Elderly, Fall Awareness, Fall Safety, Fall Education*

Identification of the Problem

"I've fallen and I can't get up," a memorable quote from a 1989 *Life Alert* commercial, is still recited with updated versions being aired daily. Though used to promote various emergency medical alert devices, it also highlights the dangers and incidence of falls in the older population. A report published in 2016 stated one in four older adults, ages 65 and older, fall each year (Bergen, Burns, & Stevens, 2016). In 2017, unintentional falls in persons age 65 and older were the leading cause of nonfatal injuries in the United States (US), accounting for 63.3% of the total number of unintentional falls (National Center for Injury Prevention and Control (NCIPC), 2017a). For the same time period and population, falls were the most contributing factor of unintentional injuries and the seventh leading cause of death in the US (NCPIC, 2017b).

Falls are costly and one of the most expensive medical conditions to treat, costing more than $50 billion in 2015 alone (CDC, 2019). The CDC estimates the financial burden for older adults may reach $67.7 billion in 2020 (2019). As older adults continue to age, falls are more common, take longer to recover from, and cost more to treat, likely due to prolonged hospital stays (Bergen et al., 2016; Frith, Hunter, Coffey, & Khan, 2019). Declining sensory disorders [eyesight, hearing, sensation, etc.], polypharmacy, and weakness are only a few of the possible causes of falls (Frith et al., 2019). One fall incident increases the likelihood of subsequent falls (CDC, 2019). Fall risk prevention methods are key factors in care, regarding efforts of healthcare providers and caretakers to increase the safety of the older adult as well as decrease falls and costs associated with falls. The overarching goal of fall prevention awareness and interventions are to improve health outcomes (CDC, 2016).

Currently, Blinded for Review (School of Nursing, School of Pharmacy, College of Liberal Arts (Social Work), College of Human Sciences (Nutrition)) conduct mobile Interprofessional education (IPE) community clinic visits to various sites that have an established partnership. A community social

worker coordinates which sites the mobile clinic will visit areas based on the needs of the community. The mobile IPE community clinic was commenced to assist older adults in the community with inadequate access to healthcare obtain access to healthcare. Clients receive free health screenings, education, and resources from the IPE groups.

The older adult is the largest population that historically attend the clinics, as many of the clinics occur in senior centers or low-income housing units. Client medications and diagnoses are reviewed, care plans are formulated by IPE teams; however, prior to the implementation of this fall prevention DNP project, there was no fall risk assessment being completed. The mobile IPE clinic is often the most patient-centered care provided to those that attend and many are already a high risk for falls. For aging adults with possibly declining faculties, fall prevention and awareness should be assessed to decrease and possibly prevent falls.

The mobile IPE clinic is often the most patient-centered care provided to those that attend and many are at high risk for falls. The purpose of this Doctor of Nursing Practice (DNP) project was to implement a fall prevention toolkit (FPT) to adults age 65 and older, that attended mobile IPE community clinics since there were no fall prevention assessments or education provided along with the health, social, and nutrition assessments. The toolkits included fall risk assessments and prevention education to reduce falls and increase older adult knowledge about fall prevention. The FPT was intended to improve the health outcomes of older adults in the community. The care disparity in this population required attention while reinforcing the necessity of the implementation of this DNP project.

Review of Literature

Falls in any population can affect a persons' mobility and quality of life. In the older adult, multiple factors, including vision impairment, environmental hazards or weakness, may contribute to falls (Bergen et al., 2016). For adults age 65 and older, the estimated falls that occur each year is 29

million; the equivalent of someone age 65 and older falling each second, every single day (Bergen et al., 2016; Sarmiento & Lee, 2017). Pohl et al. (2015) collected data on a qualitative focus group regarding older community-dwelling adults and fall precautions the participants were aware of and practiced. The study advises fall risk awareness should be introduced using various strategies and should be reinforced. The same study revealed that becoming aware of one's increased fall risk can evoke different emotions in the elderly, often affecting pride and self-confidence (Pohl et al., 2015).

The aging population may have reservations speaking with healthcare providers about declining mobility and falls, but healthcare providers should be screening and assessing for fall risks annually (American Geriatrics Society, 2011; Moncada & Mire, 2017). Furthermore, healthcare providers should use fall risk scores as guidelines to decrease patient-specific fall risk problems, rather than using generic fall risk interventions (Titler et al., 2016). For instance, if a patient's fall risk assessment reveals weakness and fear of falling as a trigger, strengthening exercises and the psychological root of why there is a fear of falling should be addressed, in addition to evaluating the need for an assistive device.

Fall risk prevention awareness, assessments, and education are needed to improve healthcare outcomes in the aging population, optimally, to increase safety and decrease falls. The American Geriatrics Society/British Geriatrics Society (2011) developed clinical practice guidelines for the prevention of falls in older persons--with the understanding that fall risk assessments are a vital element in reducing falls in the elderly population. Many fall prevention screening, awareness, and assessment tools are now available in response to numerous fall prevention and fall reduction initiatives (Moncada & Mire, 2017). Grealish et al. (2019) suggests, based on new evidence, that the focus should be concentrated on how fall prevention guidelines are utilized in conjunction with individualized corrective measures for the older adult.

For some older adults, there is little or no perceived risk of falling; for others, there are hindrances to learn fall prevention tactics or even acknowledge a gradual decline in mobility and/or loss of functions (Bulsara, Khong, Hill, & Hill, 2016; Pohl et al., 2015). The implementation of FPTs, such as fall risk screenings, home safety assessments, and FPE, have become increasingly important in reducing fall incidences (CDC, 2019; Olij et al., 2018). Research indicates that multifactoral screenings and assessments are preferred, considering no single aspect may be responsible for falls, but consider multiple issues that could be [responsible for falls] (American Geriatrics Society, 2011; H. Lee et al., 2013; Stevens & Phelan, 2013). The United States Preventive Services Task Force (USPSTF) (2018) recommends clinicians and older adult patients evaluate injury versus well-being regarding fall prevention measures. The evaluation of various medical diagnoses, fall history, and patient preferences may make a difference in the success of fall prevention of these community-dwelling elders (USPSTF, 2018).

In early 2019, researchers found that sharing FPE information where older adults congregate and frequent has value and decreases barriers to learning about fall prevention (Kiami, Sky, & Goodgold, 2019). Older adults in the community setting that have received increased FPE have the propensity to maintain independence and safer living conditions (Minnier, Leggett, Persaud, & Breda, 2019). When educating the older population about fall prevention, the association between negative fall events and positive fall prevention practices should be reiterated (Olij et al., 2019). Fall prevention screening checklists are vital initial tools in identifying at-risk individuals, but should be validated before use (Chacko, Thangaraj, & Muhammad, 2017). Lusardi et al. (2017) found that most fall prevention screening and assessment tools are predictive in identifying older adults at higher risks for falling. The most significant predictor indicators are “medical history questions, self-report measures, and performance-based measures” (Lusardi et al., 2017, p. 33).

Another recent study showed community-nurse recruitment for fall prevention activities in older community-dwelling adults, along with healthcare provider and researcher collaboration, played an integral part in the success of the study (Olij et al., 2019). Nurse-led FPE was also shown to have a greater impact on fall prevention behavior in the elderly population (Uymaz & Nahcivan, 2016). Even better results have been achieved with IPE teams collaborating with fall prevention awareness, assessments, and education implementation initiatives (McKenzie et al., 2017; Sullivan, D. Kiovsky, J. Mason, D. Hill, & Dukes, 2015; Taylor et al., 2019). Concerning nursing care and the profession of nursing, nurses will have a greater role and responsibility to care for, screen, and teach fall prevention methods to the aging population (Patton, 2018).

Conceptual Framework and Application to Project

Boykin and Schoenhofer's Nursing as Caring Theory served as the theoretical underpinnings for the development and presentation of the assessments, education, and follow-up interactions. This grand theory is an in-depth analysis of what caring is, how caring has multiple meanings, and how caring affects everyone differently (Smith & Parker, 2015). The nursing as caring theory has a multidimensional framework, as it integrates assumptions and components from its own theory and that of the nursing metaparadigm (Masters, 2015).

The tenets of the nursing as caring theory relate to the implementation of an FPT in the elderly population in various ways. The elderly may become forgetful, but they are not forgotten. The nursing as caring theory applies to this project because the aging population is, in fact, the focus. The IPE community clinics are a means of older adults in the community gaining access to healthcare through free screenings and healthcare collaborations. The clinics also provide an environment for members of the community to congregate; "community" in a true sense of the word. Through interviewing and providing education, the DNP student, a nurse, provided a form of caring. The follow-up phone

communications in the subsequent month emphasized the notion that someone cares and is proactive in attempts to help decrease falls and increase fall risk awareness and education in the aging population.

Project Methodology

A design consisting of a quantitative pretest-posttest and an open-ended participant survey design was utilized. The project is considered a practice change model in a specific type of setting (community clinics), and for a specifically aged population. The project setting occurred in various community settings in Blinded for Review and surrounding counties. The mobile IPE community clinics happened on Fridays in nursing homes, assisted living facilities, community centers, and other rural settings.

Participant criteria included being 65 or older, English speaking, with no exclusion for race or gender. The sample was $n = 30$. Participants consisted of mostly women (73.3%), doubling the number of male participants (26.6%). Fifty percent of the participants lived independently in the community, 26.7% lived in an assisted living facility, and 23.3% lived in low-income housing. Physical mobility of the various participants included total ambulatory (requiring no assistance), mostly ambulatory (the use of assistive devices at times), and very limited (dependent on a motorized or manual wheelchair).

Intervention

The intervention for this project was the implementation of fall risk assessments and fall prevention education to older adults that attended IPE community clinics. The mobile IPE community clinic visits were scheduled, and the DNP project advertised weeks in advance of actual IPE mobile clinics to gain possible participant interest. This was accomplished by displaying flyers with project information in the various facilities 1-2 weeks before implementation. Some word of mouth recruitment also occurred at the mobile IPE clinical sites.

Upon arrival at the mobile IPE community clinical sites, interest was confirmed with self-identified participants who met the inclusion criteria. Prior to visits to the clinical sites, FTP packets were prepared, which included the consents, assessments, and educational resources. If the inclusion criteria were met, the participants were read the informed consent script regarding the DNP project. All interested parties were provided instructions and signed an informed consent form. Participants also provided contact information for follow-up communication. Participants were assigned by the number in which their assessment occurred. Each participant was ushered to a quiet area by the DNP student in order to provide privacy during the implementation of the FTP.

Once the participants were seated and ready to proceed, the first fall risk assessment, the MAHC-10, was evaluated. Once the individual baseline fall risk scores were obtained via the MAHC-10 assessment, a self-reported fall prevention safety education assessment, "*Stay Independent*", was completed and calculated. Comparisons between the two fall risk assessment types will be discussed later. Next, a fall safety checklist with safety guidelines "*Check for Safety*", were reviewed with the participants. Each question yielded an intervention to improve fall prevention safety and knowledge. For areas of improvement based on the "*Check for Safety*" guidelines, more time was spent teaching the participants how and why certain changes were needed to improve their safety.

Lastly, a fall prevention educational pamphlet, "*What You Can Do to Prevent Falls*" was also reviewed and given to the participants to keep for reference. "*What You Can Do to Prevent Falls*" was read to the participants and specific areas of improvement were circled on the pamphlet. The participants were notified of exercises, such as Tai Chi and yoga, to improve balance and strength. The DNP student emphasized the importance of the participants slowing down and making intentional movements, like counting to three between taking steps. Each project participant session took 30-50 minutes depending on participant need. Participants were given a copy of the informed consent for

reference and contact information for the DNP student and Institutional Review Boards in case there were questions or concerns after the intervention.

One month after the initial assessment, the two fall risk assessments were re-administered and the "*Check for Safety*" guidelines re-evaluated to assess if suggested improvements were made by the participants. The project-specific five-question follow-up survey was also completed during the follow-up. The follow-up questions requested additional information on possible changes the participants made, as well as their evaluation of the FPE provided.

Instruments

The first instrument that was used in this DNP project is the Missouri Alliance for Home Care 10-question survey (MAHC-10). The MAHC-10 was developed to assist home health agencies' compliance with Centers for Medicare and Medicaid Services' (CMS) Outcome and Assessment Information Set Criteria (OASIS-C) for home health patients (Calys, Gagnon, & Jernigan, 2012). The MAHC-10 is multifactorial, standardized, and has been validated as a single tool to assess fall risks (Missouri Alliance for Home Care (MAHC), 2012). The validation study was a 2010 (July-October) four-month retrospective review of nine home health agencies located in Missouri. The sample size for the study was $n = 2247$. The MAHC-10 includes a fall risk assessment tool (survey), a fall report form, and a Microsoft Excel data entry form (MAHC, 2012).

The 10-question assessment tool requires information such as age, comorbidities, medical, and fall history. A numerical value was assigned for each question. The tally of the questions is combined, resulting in the MAHC-10 fall risk score. The fall prevention benchmarking initiative was tested in 2010. The construct validity of MAHC-10 differentiates between "fallers" and "nonfallers" (Calys et al., 2012). Also, on the MAHC-10 fall prevention tool, "prior history of falls" is defined as, "An unintentional change in position resulting in coming to rest on the ground or at a lower level" (MAHC,

2012). The fall risk factors are consistent with the literature (Calys et al., 2012). "Fallers," individuals that are high-risk for falls, are considered to have a fall risk score of 4 or more (Calys et al., 2012; MAHC, 2012). However, researchers suggest that each agency alter the fall risk score for their specific needs and indications. Individuals with scores of less than four were less likely to fall according to their medical histories and MAHC-10 assessments (Calys et al., 2012).

The next instruments to be used in this DNP project, "*Stay Independent*, "*Check for Safety*", and "*What You Can Do to Prevent Falls,*" are components of the Center for Disease Control and Prevention's STEADI initiative. The STEADI initiative was designed specifically for healthcare providers that cater to the older populations, which is especially important for patients who have fallen or are at risk for falling (R. Lee, 2017). The three essential STEADI components are screening, assessing, and appropriate interventions (CDC, 2016). The CDC's intent with the STEADI initiative was to develop varying levels of resources for healthcare providers, resulting in improved health outcomes in the older adult (CDC, 2016).

The STEADI fall prevention toolkit offers a wide range of fall prevention materials that are free to use, customizable, and may be downloaded. There is also an option to purchase components of the toolkit, printed by the CDC, instead of downloading and printing on-site. Materials include fall prevention screening materials, teaching materials, care planning booklets, fact sheets, checklists, and exercise pocket guides. Anyone may use any part of the toolkit or the entire toolkit at the discretion of the user. The CDC also offers training classes on how to implement STEADI into practice as well as case studies and "Frequently Asked Questions" on the website.

For this DNP project, the following STEADI components were utilized: a self-reported fall prevention safety education assessment, "*Stay Independent*", a fall safety checklist with safety guidelines, "*Check for Safety*", and a fall prevention educational pamphlet, "*What You Can Do to*

Prevent Falls", which the participants will keep. "*Stay Independent*" is a validated self-risk assessment brochure that brings awareness to risks of falling. The "yes" and "no" questions translate to numerical values to be tallied. Like the MAHC-10, a fall risk score of 4 or greater indicates a higher fall risk. "*Check for Safety*" is a home safety brochure that aids in identifying and correcting potential fall risks in the home setting. "*What You Can Do to Prevent Falls*" is an additional informational brochure that includes effective strategies to prevent and/or reduce falls (CDC, 2016).

The STEADI initiative and materials were tested extensively for validity and reliability by various healthcare providers and using various methods, such as interviews and focus groups. Members of the focus group (n = 18) commented on how useful the tool was because the initiative did not focus on the patients only after falls, but is useful as a preventative measure for falls (Stevens & Phelan, 2013). The STEADI materials were found to be valid and considered to demonstrate empirical evidence in a 2017 study that used the 2011-2015 National Health and Aging Trends Study data. The sample size in the aforementioned study was n = 7,392 and consisted of adults age 65 and older (Lohman et al., 2017). Additionally, the STEADI initiative follows the *American and British Geriatrics Societies' Clinical Practice Guidelines* (CDC, 2016).

The project-specific, five-question follow-up survey was developed by the DNP student with input from the DNP project chair and DNP mentor. The survey was completed during the follow-up phone call with participants. The follow-up questions requested additional information concerning possible changes the participants made after the FPT implementation, if they had fallen since the FPE, as well as their evaluation of the FPE provided. The last question on the survey, "Is there anything else you would like for me to know," allowed for participants to express additional feelings and concerns regarding fall prevention awareness, safety, and knowledge.

Data Collection

All data were collected by the DNP student. Data and forms were transported by the DNP student in a locked travel bag. No identifiable information was included during the data analysis. All data were systematically logged on paper forms, tabulated, and evaluated using descriptive statistics and parametric analysis (interviews and questionnaires). The data were entered in the *Statistical Package for the Social Sciences* (SPSS) version 24. Completed surveys and informed consent were placed in a locked file cabinet where they will be retained and accessible only by the DNP student for five years.

The MAHC-10 assessment tool was administered upon recruitment and obtained consent from older adult participants. The MAHC-10 fall risk assessment requested information such as the patient's age, medical, and fall history. Points were assigned for each assessment question. The numerical total of the points for each MAHC-10 assessment was the baseline fall risk assessment score. The numerical total of the points for each *"Stay Independent"* checklist, was the baseline FPE score.

After one month, follow-up phone communication with participants occurred. The DNP student communicated with the participants using the contact information given during the initial assessment. Participants were queried by reassessing the MAHC-10 fall risk and the *"Stay Independent"* self-reported checklist. Scripted follow-up questions were also asked. Over the six-week project period, 33 participants were obtained for the initial assessment and FPE. Of the 33 initial participants, 30 were available for the reassessment and follow-up questions.

Data Analysis

Statistical analysis of the project data was conducted using SPSS Version 24. The baseline fall risk assessment scores, FPE scores, and descriptive statistics were entered and analyzed in SPSS. After the follow-up phone call, new scores were tabulated, entered into SPSS, and analyzed Prior to the FPE, the participants' overall MAHC-10 score was ($\mu = 4.87$, ($SD = 1.978$)); after receiving FPE, that level

decreased to (μ = 4.83, (SD = 1.821)) in a month. Prior to the FPE, the participants' overall "Stay Independent score was (μ = 5.67, (SD = 3.977)); after receiving FPE, that level decreased to (μ = 5.53, (SD = 4.158)). See Table 1. The MAHC-10 fall risk assessment pre and post scores were statistically insignificant *(p = .662, α = .05)*. The MAHC-10 paired *t*-test was *(t=.441, p = .662)* supports the fall prevention education to be statistically insignificant. The *"Stay Independent"* fall risk assessment pre and post scores were statistically insignificant *(p = .255, α = .05)*. The *"Stay Independent"* paired *t*-test was *(t=1.161, p = .255.)*. See Table 2.

Findings

The overall scores of the thirty participants that completed both the initial and follow-up assessments did not change significantly in one month. The mean MAHC-10 initial assessment score was μ = 4.87 and the reassessment mean was μ = 4.83. The "*Stay Independent*" Fall Risk initial assessment produced a mean of μ = 5.67, with a follow-up mean of μ = 5.53. In both fall risk assessment tools, lower scores indicated a lower fall risk; both fall risk assessment tool means decreased over the project period.

Upon reassessment via the follow-up phone call, a specific question regarding recent falls was used to evaluate if client falls decreased and to what degree, by comparing the baseline and reassessment scores. The question asks if there has been a fall in the past three months. In the initial assessment, six of the 30 participants admitted to falling in the past three months. There were six reported falls in the three months prior to the project and two reported falls in the one month following the education. Because of the difference in time periods, no conclusion can be drawn.

The home safety brochure, "*Check for Safety,*" (Appendix G) aided in identifying potential fall risks in the home setting and guided individualized teaching points for the participants in this DNP project. Many of the questions focused on if there were stairs in the dwelling, how well-lit were the

commonly used areas, and possible environmental hazards. During the follow-up phone call, specific areas of concern were reassessed to note any changes and improvements in the home environment. For example, for the question, "Do you have throw rugs on the floor," participants were educated on removing the rugs or obtaining non-skid mats to go under them and explained why the rugs are a fall hazard. While none of the "*Check for Safety*" questions demonstrated statistical significance per the paired samples correlations, one of the questions produced noteworthy safety improvements; "Is the light near the bed hard to reach." Participants were educated on possibly moving the lamp closer, keeping a flashlight near them to prevent straining, purchasing a battery-operated portable LED light, or utilizing a nightlight to provide additional visibility.

Additionally, a five-question follow-up survey was completed after the reassessments and knowledge scores. The questions revolved around changes the participants made, if any, and if there were suggestions to improve the delivery of information. Twenty-eight of the thirty participants responded they had not fallen since the FPE and two participants had fallen. Of the six participants that had fallen within the three months before the initial assessment, none of the initial six participants had fallen since the baseline assessment and education.

Interestingly, though both fall assessment tools were developed by different entities, both use a score of four or greater to indicate fall risks. This unique DNP project produced comparisons between the two fall-risk assessment types and measured the accuracy of the tools. The most notable difference between the two assessment types was the MAHC-10 focused almost solely on concrete medical information and the "*Stay Independent*" assessment included other factors such as perceptions of unsteadiness, fear of falling, as well as feelings of depression. Both the MAHC-10 and *"Stay Independent"* scores for the initial six participants that had fallen were above four, indicating a higher

risk for falls; however, neither of the assessment tools indicated a fall risk score (a score of four or above) for the two participants that fell after the FPE.

The findings of this project, with this population, were consistent with the current literature. A merging of the two fall risk tools utilized, MAHC-10 and STEADI, or one that incorporates individual medical information and perceptions may be optimal for this type of project. Nithman and Vincenzo (2019) also used the STEADI fall risk toolkit in community-dwellers and noted the difficulty in the tool identifying fallers. In the same study, the recommendation was also made that multiple tools be used for identifying fall risks in individuals. Callis (2016) identified twenty significant fall risk factors and determined that there is not a comprehensive fall risk tool that addressed them all. Though both the MAHC-10 and STEADI provided valuable information to indicate fall risks, a fall risk assessment tool that does not mutually exclude medical information and/or personal perceptions may be better suited for this type of project. A more comprehensive tool would take both types of factors listed previously into account and possibly capture those who do not fall in the fall risk category in the two different types used in this DNP project.

According to participant feedback collected in the follow-up assessments, many participants voluntarily stated that they enjoyed the follow-up assessment and conversation. One of the faculty involved in the mobile IPE clinic conducts two-week follow-ups. Therefore, the participants involved in the mobile IPE clinics and the FPE Implementation DNP project received two follow up assessment phone calls in a month. The participants said the follow-ups gave them a true sense that someone cares about them and they are somehow being "looked after." Some participants even relayed that they also improved their behavior because they knew there would be a follow-up and wanted to be able to give a good report. Follow-ups over a longer period may create the desire to continue the "good reports" and affect fall prevention and safety for older adults in the community. Radulescu, Daniel, and Niv (2016)

cite other research and reiterate positive reinforcement reward systems, [in the case of this project, follow-up phone call assessment, and conversation], continue to play a role in behavior changes.

Discussion

There are many concentrated research efforts focused on fall prevention and fall safety in older adults. Mobile IPE community clinics require support and efforts from multiple stakeholders including the University, community partners, and community members. This DNP project continued these efforts and discovered additional factors to help make fall prevention education implementation projects successful. A fall risk assessment and a self-risk assessment, both validated, were used to calculate fall risk scores in the older adults that attend the mobile IPE community clinics. The older adults in the community were assessed for fall risks, educated on how to prevent falls, and how to make their homes safer. Blinded for Review IPE program observed the benefit of the FPE and are considering implementing their own fall prevention initiative, possibly using components of this DNP project.

Implications

Only one mobile IPE clinic occurred before realizing key elements that would have made this DNP project more effective: necessary resources and additional time. During the initial assessments and education, participants were encouraged to obtain essential resources to increase their safety and prevent falls, as guided by the "*Check for Safety*" list. Many of the participants fell in the low-income economic category and qualified for low-income housing, hence the need for free assessments by the mobile IPE clinic. During the follow-up assessment and questionnaire, the participant feedback revealed some participants could not improve fall safety in their home environment. Materials, such as non-skid mats or double-sided tape for rugs or portable lights to increase visibility, were not purchased because some participants did not have the resources to obtain them. Resources include monetary funds, devices, as well as transportation to attain the devices. Future projects could include grant funding. Having

resources on hand to provide the participants during the initial assessments may have led to a greater impact in this population by ensuring the resources were received and possibly, improve health outcomes indicated by fewer falls.

Additional time is needed to continue projects of this type. Along with the conversation and educational components of the project, increased time may have allowed for supplementary interventions such as demonstrations of safe balance and strengthening exercises. Where possible, group exercise sessions by certified instructors, focusing on balance and strength, could have produced a project with increased efficacy. Following up with the participants in three months and asking about their recall of falls after the education was provided would also be beneficial.

A 2017 study determined that assisted living communities and facilities should utilize fall prevention protocols and flowcharts to decrease falls in their residents (Coughlin, Nordman-Oliveira, Schlaak, & Ford Ii, 2019). Two of the initial six fallers lived in an assisted living facility [26.7% of the project participants] possibly indicating improved fall prevention measures of the facility, as indicated in the Coughlin et al. (2019) study. One of the assisted living facilities where participants resided, offered fall alert/alarm devices and mandated that all bathroom shower and toilet areas had handrails installed. The researchers agree that additional exploration is needed in developing and implementing a falls prevention process that is comprehensive enough to decrease falls for all (Coughlin et al., 2019).

Results from this project indicate more studies are needed to develop a comprehensive fall risk assessment and intervention tool that can be used for all ages, especially the older adult. The data showed various participants with similar fall risk scores to be fall risks for different reasons. A score of five on the MAHC-10 could be due to age, previous falls, polypharmacy, stroke, and the need to wear glasses; whereas the same score of five on STEADI's "*Stay Independent,"* could be the result of previous falls, using an assistive device, and worrying about falling.

The CDC's STEADI comprehensive tool kit for health care professionals includes many components, such as screening tools, assessments, balance tests, and referral forms, but were not implemented in this project due to time restrictions. While using two assessment tools for this project, future data collection will include a more inclusive assessment tool including medical history, co-morbidities, previous falls, polypharmacy, psychological and psychosocial issues, access to resources, with appropriate interventions and continuous follow-up. Another important aspect of the comprehensive assessment tool would be one that categorizes the levels of risk. For example, scores 0-3 low fall risk, 4-7 medium, and 8-12 high, with increased interventions and prevention measures implemented with increasing scores, much like STEADI's screening tool. As a result, identifying those at higher risks for falls could occur sooner and interventions, faster.

Limitations

Project implementation and mobile IPE clinics occurred in a small region in Alabama and findings may not be generalizable to the public or other similar participant groups. Ideally, the sample size would be larger. There were 33 initial participants, but three were excluded from follow-up due to the inability to contact them. More thorough assessments could have occurred if access was granted to visit the actual living space of the participants. Other barriers that impacted this DNP project and the participation rate were the short follow-up period, lack of additional interventions, deficient time intervals of the IPE clinics, age limitation, time of day, weather, and specific dates.

Due to DNP project time constraints, significant changes about decreased falls were difficult to measure. The brief follow-up period with participants was one month, which was not adequate time to assess significant changes regarding decreased falls in this population. Following the assessment and evaluation of FPE scores, education was the intervention. Although participants were educated and given information via the CDC (2017) pamphlet, *"What You Can Do to Prevent Falls",* on the

importance of balance and strengthening exercises, these exercises could have been demonstrated given more time. Future projects could have incorporated exercise sessions with a trained professional as an intervention with additional assessment pre and post this intervention.

The setting and time of the mobile IPE clinics was a limitation that could not have been predicted. The IPE clinics occurred once a week for a few hours and each participant session took 30-50 minutes, contributing to the time constraints for these additional interventions. More frequent clinics or longer clinic hours could solve this constraint. The setting and time of the clinics were also restricted by the IPE faculty that run the clinics. The IPE faculty clinic organizers plan the clinics during times all involved disciplines can attend, each with a group of students. Training and educating IPE faculty members of other disciplines about the FPT was similarly hindered by time, but could have contributed to a more significant DNP project and likely, a larger sample size. Future planning could include buy-in from the other IPE faculty stakeholders. Therefore, the project, like the clinics, would be interprofessional and valuable to all.

Since the mobile IPE clinics occurred in some low-income housing developments, some individuals may have benefited from the FPE that did not meet the age requirement of 65 or older. Some participants felt the IPE mobile clinics occurred too early in the day, which may have resulted in the low turnouts at some of the sites. The weather was unpredictable months ahead of the IPE clinical time, therefore rainy days may have resulted in a lower turnout. The lowest participation turnout day for the mobile IPE clinic and the DNP project occurred on Friday the 13th. One of the participants who had been involved in the clinics in the past recognized the lower turnout as well and provided a possible rationale, “Oh, some are very superstitious over here. They won’t even come out of their house today so nothing bad will happen to them.”

Conclusion

Falls are more common and more costly as one ages. Especially, in the older adult, once a fall occurs, there is an increased likelihood that another fall will ensue. Fall prevention and awareness should be assessed to decrease and possibly decrease falls in all ages. The mobile IPE community clinics provided health, social, and nutrition assessments, but none were specific in addressing fall risks or education. The purpose of this DNP project was to implement a fall prevention toolkit (FPT) to adults age 65 and older, that attended mobile IPE community clinics since there were no fall prevention assessments or education being provided in conjunction with other assessment types. Two validated fall risk assessment tools were utilized, the MAHC-10 and the CDC's STEADI. Fall risks were assessed by interviewing community members age 65 and older at the mobile IPE community clinic sites. The DNP project was evidence-based, according to the development and implementation of a FPT, with the intent of improving the health outcomes of the older adults in the community. The overall scores of the thirty participants that completed both the initial and follow-up assessments did not change significantly in one month. Following up with the participants in three months and asking about their recall of falls after the education was provided would also be beneficial. Continued follow-ups, reinforcement of FPE, and resource availability would be key in enhancing this type of project. This project was designed to be replicated in other populations/areas. Additional research using multiple fall risk assessment tools combined with FPE and interventions are needed to determine if the combination is beneficial.

Table 1

Paired Samples Statistics for the MAHC-10 and "Stay Independent" Fall Risk Assessments

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	MAHC-10 Fall Risk Initial Score	4.87	30	1.978	.361
	MAHC-10 Fall Risk Reassessment Score	4.83	30	1.821	.332
Pair 2	Stay Independent Fall Risk Score	5.67	30	3.977	.726
	Stay Independent Fall Risk Reassessment Score	5.53	30	4.158	.759

Table 2

Paired Samples Test for the MAHC-10 and "Stay Independent" Assessments

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation N	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	MAHC-10 Fall Risk Initial Score- MAHC-10 Fall Risk Reassessment Score	.033	.414	.076	-.121	.188	.441	29	.662
Pair 2	Stay Independent Fall Risk Initial Score - Stay Independent Fall Risk Reassessment Score	.133	.629	.115	-.101	.368	1.161	29	.255

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FIGURES

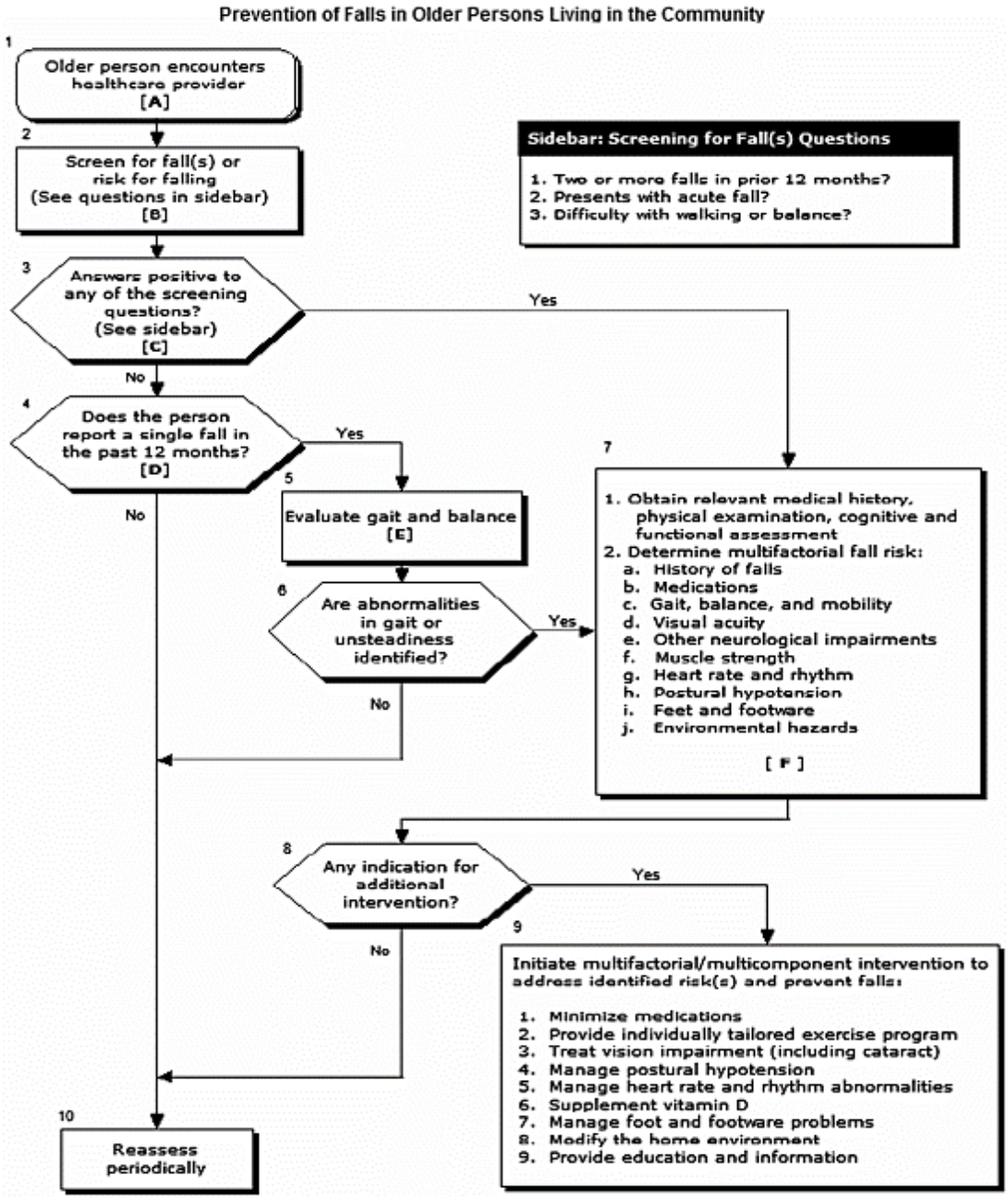


Figure 1. The American Geriatrics Society/British Geriatrics Society Fall Prevention Algorithm, *Prevention of Falls in Older Persons Living in the Community.* (American Geriatrics Society, 2011, p. 3).

FIGURES

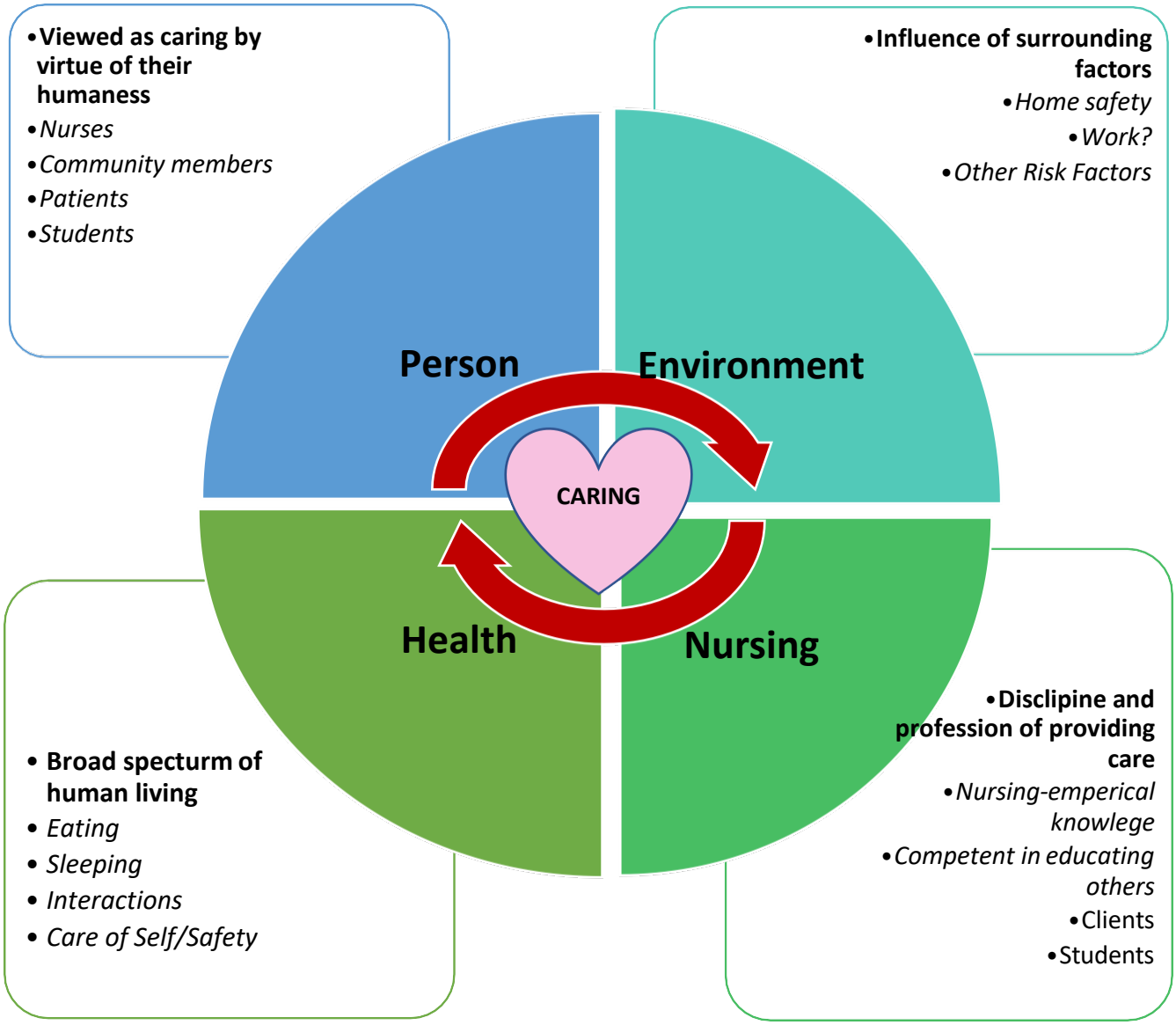


Figure 2. DNP student's interpretation of Boykin and Schoenhofer's Nursing as Caring Theory also including the four concepts of the nursing metaparadigm.

FIGURES

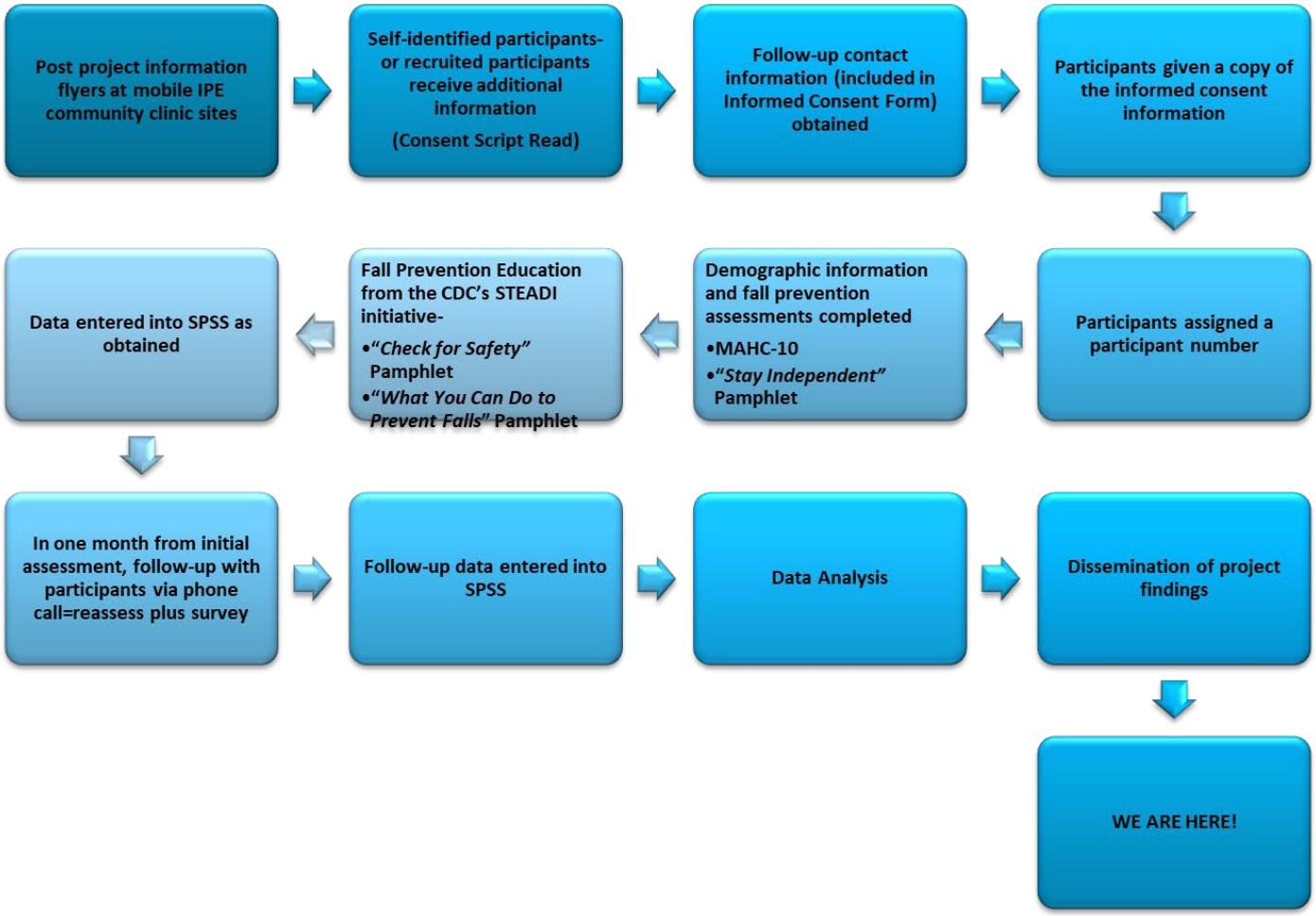


Figure 3. The initial DNP project process.

FIGURES

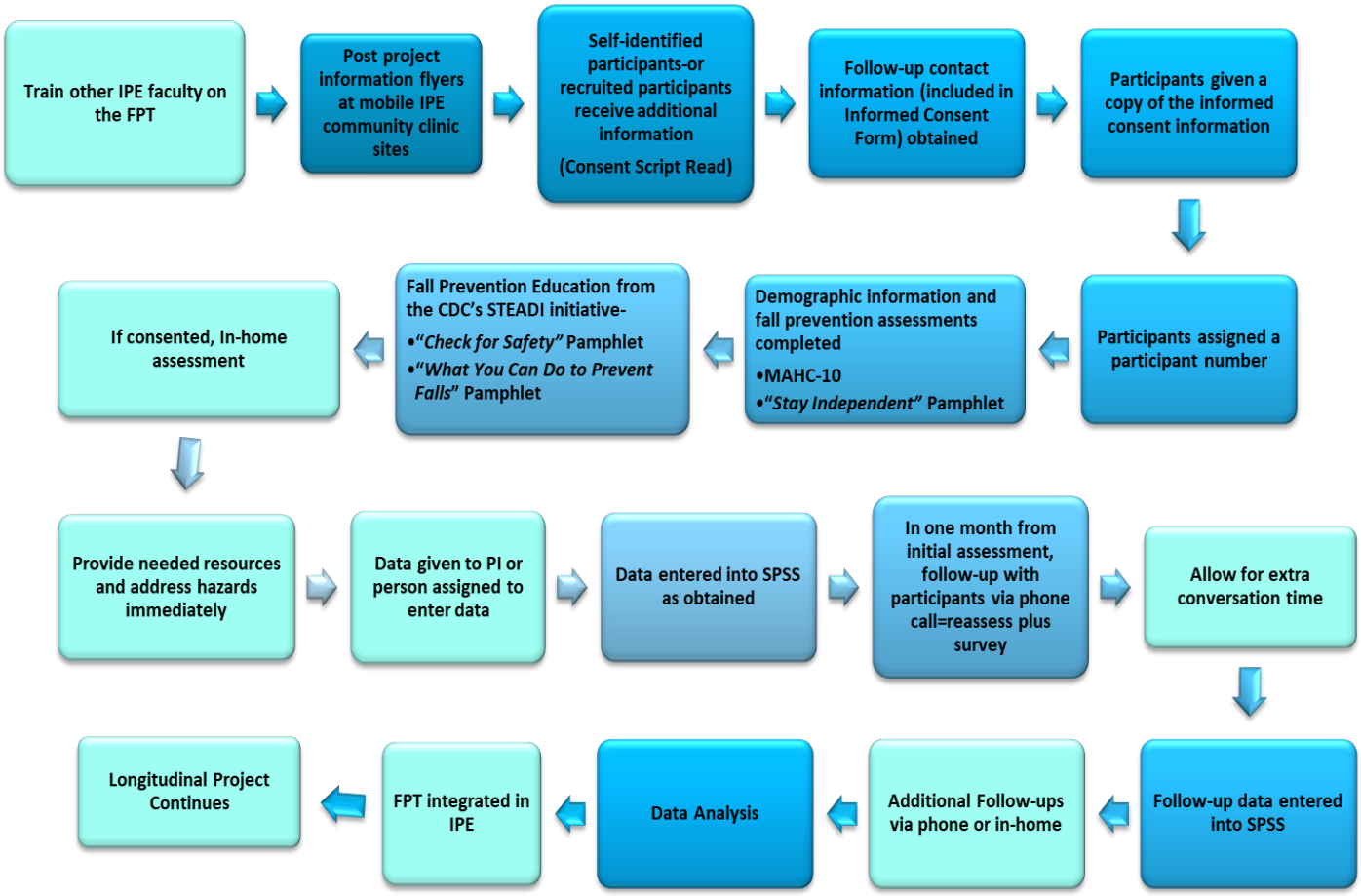


Figure 4. The revised project process.

FIGURES

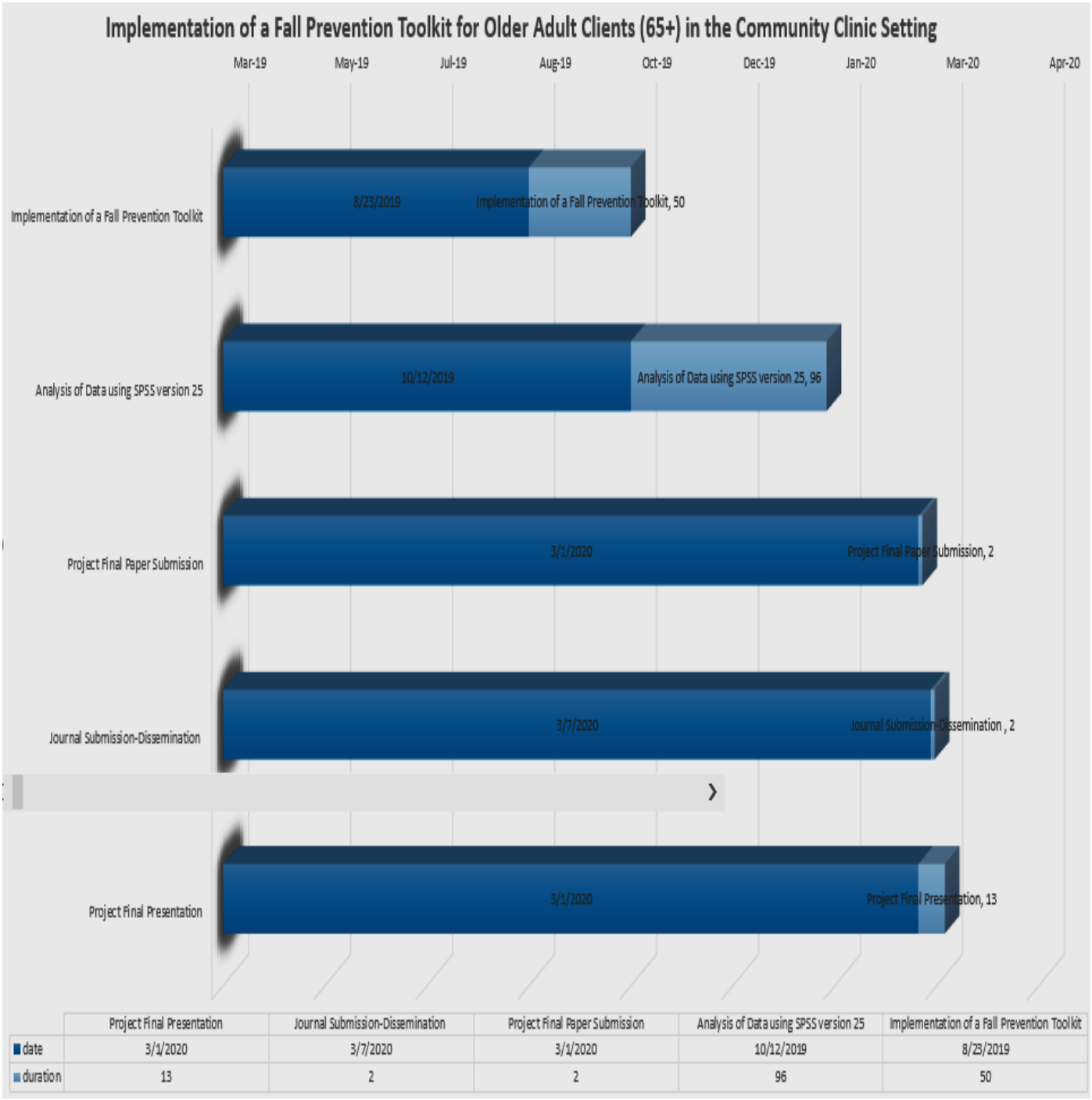


Figure 5. Project Timeline for the DNP Project, Implementation of a Fall Prevention Toolkit for Older Adult Clients (65+) in the Community Clinic Setting.

APPENDIX C

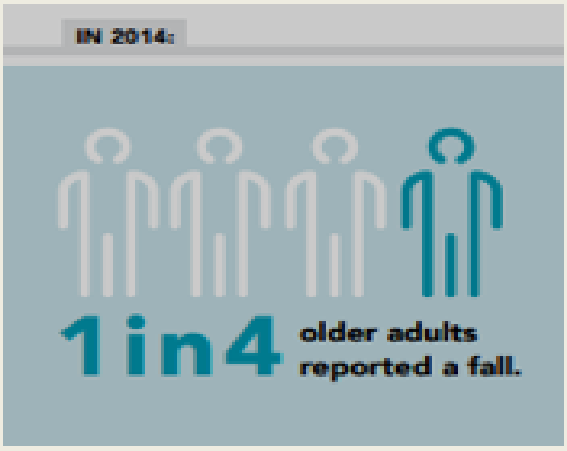
Fall Prevention Flyer to be Posted Prior to On-Site Clinic Days

BE CARE-FALL!!!!

DNP (NURSING) PROJECT OPPORTUNITY

Did you know….

Find out how much you know about fall prevention and receive additional education on how to stay safe.



Info fact from CDC.gov/STEADI

Are you eligible? *65 years or older
*English Speaking
*Have 30 min of time

A DNP Student, a nurse, will be on-site on _____ to assess fall risks and provide education on how to be safe and decrease chances of falls.

For more information, please call 334-844-6703

APPENDIX E

Missouri Alliance for Home Care 10-Question Fall Risk Assessment Tool

Missouri Alliance for HOME CARE

Home Care Fall Reduction Initiative

MAHC 10 - Fall Risk Assessment Tool

Click here to review the Validation Study of the Missouri Alliance for Home Care's fall risk assessment tool.

Conduct a fall risk assessment on each patient at start of care and re-certification.

Patient Name:_____

(Circle one) SOC or Re-certification Date:_____

Required Core Elements **Assess one point for each core element "yes".** *Information may be gathered from medical record, assessment and if applicable, the patient/caregiver. Beyond protocols listed below, scoring should be based on your clinical judgment.*	**Points**
Age 65+	
Diagnosis (3 or more co-existing) Includes only documented medical diagnosis	
Prior history of falls within 3 months An unintentional change in position resulting in coming to rest on the ground or at a lower level	
Incontinence Inability to make it to the bathroom or commode in timely manner Includes frequency, urgency, and/or nocturia.	
Visual impairment Includes but not limited to, macular degeneration, diabetic retinopathies, visual field loss, age related changes, decline in visual acuity, accommodation, glare tolerance, depth perception, and night vision or not wearing prescribed glasses or having the correct prescription.	
Impaired functional mobility May include patients who need help with IADLS or ADLS or have gait or transfer problems, arthritis, pain, fear of falling, foot problems, impaired sensation, impaired coordination or improper use of assistive devices.	
Environmental hazards May include but not limited to, poor illumination, equipment tubing, inappropriate footwear, pets, hard to reach items, floor surfaces that are uneven or cluttered, or outdoor entry and exits.	
Poly Pharmacy (4 or more prescriptions – any type) All PRESCRIPTIONS including prescriptions for OTC meds. Drugs highly associated with fall risk include but not limited to, sedatives, anti-depressants, tranquilizers, narcotics, antihypertensives, cardiac meds, corticosteroids, anti-anxiety drugs, anticholinergic drugs, and hypoglycemic drugs.	
Pain affecting level of function Pain often affects an individual's desire or ability to move or pain can be a factor in depression or compliance with safety recommendations.	
Cognitive impairment Could include patients with dementia, Alzheimer's or stroke patients or patients who are confused, use poor judgment, have decreased comprehension, impulsivity, memory deficits. Consider patients ability to adhere to the plan of care.	
A score of 4 or more is considered at risk for falling **Total**	

Clinician's signature_____

Missouri Alliance for HOME CARE
2420 Hyde Park, Suite A, Jefferson City, MO 65109-4731 • (573) 634-7772 • (573) 634-4374 Fax

Want resources to reduce your falls rate & compare yourself with other home care agencies? Join MAHC's Falls Reduction Benchmark Project – contact us today for more information!

APPENDIX F

The CDCs STEADI Self-Reported Fall Prevention Safety Education Assessment Brochure

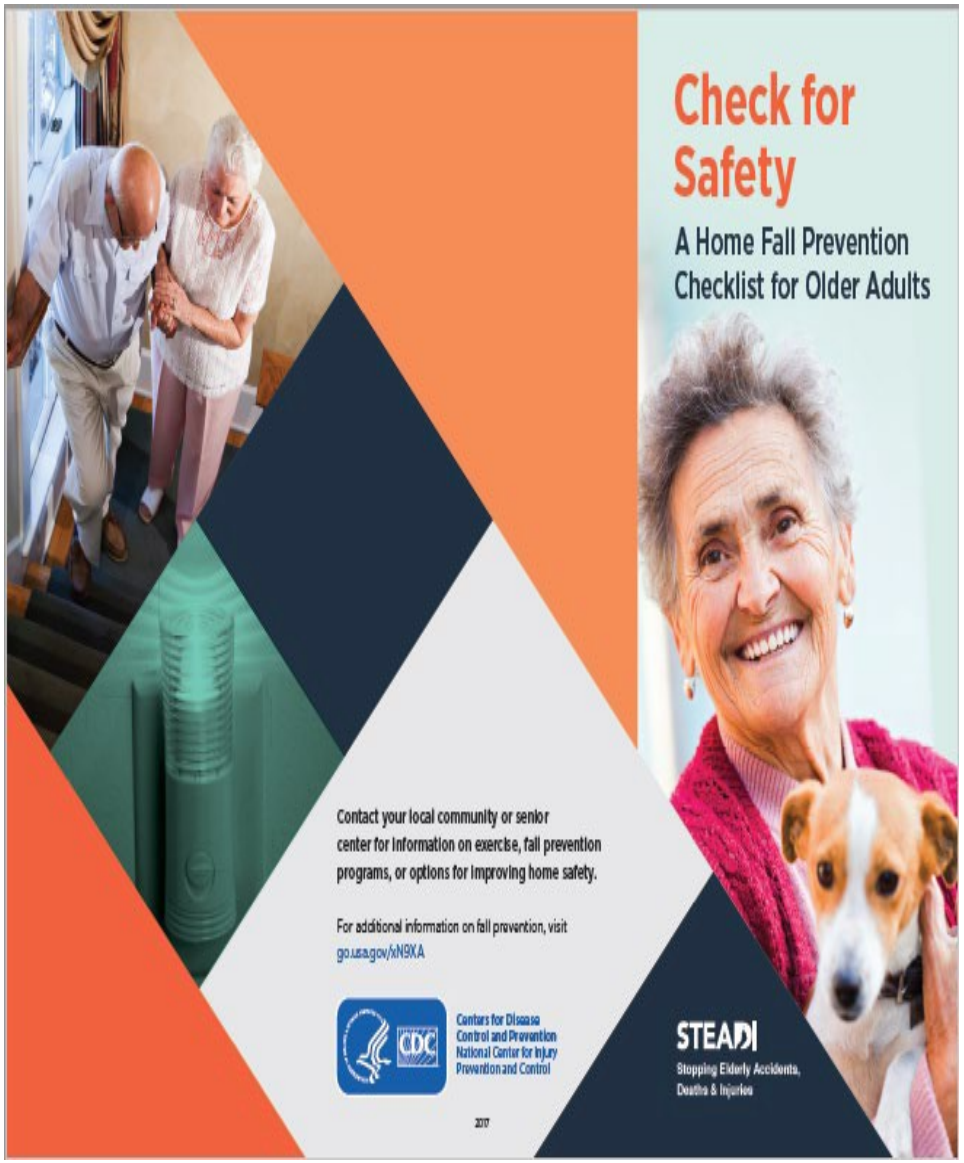
Check Your Risk for Falling

Circle "Yes" or "No" for each statement below			Why it matters
Yes (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
Total		Add up the number of points for each "yes" answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor.	

This checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein et al. J Safety Res; 2011: 42(6):493-499). Adapted with permission of the authors.

APPENDIX G

The CDCs STEADI Fall Safety Checklist



Use this checklist to find and fix hazards in your home.

STAIRS & STEPS (INDOORS & OUTDOORS)

Are there papers, shoes, books, or other objects on the stairs?

- ☐ Always keep objects off the stairs.

Are some steps broken or uneven?

- ☐ Fix loose or uneven steps.

Is there a light and light switch at the top and bottom of the stairs?

- ☐ Have an electrician put in an overhead light and light switch at the top and bottom of the stairs. You can get light switches that glow.

Has a stairway light bulb burned out?

- ☐ Have a friend or family member change the light bulb.

Is the carpet on the steps loose or torn?

- ☐ Make sure the carpet is firmly attached to every step, or remove the carpet and attach non-slip rubber treads to the stairs.

Are the handrails loose or broken? Is there a handrail on only one side of the stairs?

- ☐ Fix loose handrails, or put in new ones. Make sure handrails are on both sides of the stairs, and are as long as the stairs.

FLOORS

When you walk through a room, do you have to walk around furniture?

- ☐ Ask someone to move the furniture so your path is clear.

Do you have throw rugs on the floor?

- ☐ Remove the rugs, or use double-sided tape or a non-slip backing so the rugs won't slip.

Are there papers, shoes, books, or other objects on the floor?

- ☐ Pick up things that are on the floor. Always keep objects off the floor.

Do you have to walk over or around wires or cords (like lamp, telephone, or extension cords)?

- ☐ Coil or tape cords and wires next to the wall so you can't trip over them. If needed, have an electrician put in another outlet.

KITCHEN

Are the things you use often on high shelves?

- ☐ Keep things you use often on the lower shelves (about waist high).

Is your step stool sturdy?

- ☐ If you must use a step stool, get one with a bar to hold on to. Never use a chair as a step stool.

BEDROOMS

Is the light near the bed hard to reach?

- ☐ Place a lamp close to the bed where it's easy to reach.

Is the path from your bed to the bathroom dark?

- ☐ Put in a nightlight so you can see where you're walking. Some nightlights go on by themselves after dark.

BATHROOMS

Is the tub or shower floor slippery?

- ☐ Put a non-slip rubber mat or self-stick strips on the floor of the tub or shower.

Do you need some support when you get in and out of the tub, or up from the toilet?

- ☐ Have grab bars put in next to and inside the tub, and next to the toilet.

APPENDIX H

The CDC's STEADI Fall Prevention Educational Pamphlet

Many falls can be prevented.

By making some changes, you can lower your chances of falling.

Four things YOU can do to prevent falls:

- Have your healthcare provider review your medicines.
- Exercise to improve your balance and strength.
- Have your eyes and feet checked.
- Make your home safer.

What YOU Can Do to Prevent Falls

For more information, contact Centers for Disease Control and Prevention 1-(800)-CDC-INFO (232-4636) or visit www.cdc.gov/steadi

For information about fall prevention, visit go.usa.gov/xN9XA

For more information about hypotension, visit www.mayoclinic.com www.webmd.com

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

2017

STEADI
Stopping Elderly Accidents, Deaths & Injuries

Four things YOU can do to prevent falls:

① Talk openly with your healthcare provider about fall risks & prevention.

Tell a provider right away if you fall, worry about falling, or feel unsteady. Have your doctor or pharmacist review all the medicines you take, even over-the-counter medicines. As you get older, the way medicines work in your body can change. Some medicines, or combinations of medicines, can make you sleepy or dizzy and can cause you to fall. Ask your provider about taking vitamin D supplements to improve bone, muscle, and nerve health.

② Exercise to improve your balance and strength.

Exercises that improve balance and make your legs stronger, lower your chances of falling. It also helps you feel better and more confident. An example of this kind of exercise is Tai Chi.

Lack of exercise leads to weakness and increases your chances of falling.

Ask your doctor or healthcare provider about the best type of exercise program for you.

Talk to your doctor about fall prevention.

③ Have your eyes and feet checked.

Once a year, check with your eye doctor, and update your eyeglasses, if needed. You may have a condition like glaucoma or cataracts that limits your vision. Poor vision can increase your chances of falling. Also, have your healthcare provider check your feet once a year. Discuss proper footwear, and ask whether seeing a foot specialist is advised.

④ Make your home safer.

- Remove things you can trip over (like papers, books, clothes, and shoes) from stairs and places where you walk.
- Remove small throw rugs or use double-sided tape to keep the rugs from slipping.
- Keep items you use often in cabinets you can reach easily without using a step stool.
- Have grab bars put in next to and inside the tub, and next to the toilet.
- Use non-slip mats in the bathtub and on shower floors.
- Improve the lighting in your home. As you get older, you need brighter lights to see well. Hang light-weight curtains or shades to reduce glare.
- Have handrails and lights installed on all staircases.
- Wear well-fitting shoes with good support inside and outside the house.

APPENDIX I

Follow-Up Survey

Implementation of a Fall Prevention Toolkit for Older Adult Clients (65+) in the Community Clinic Setting

DNP (NURSING) PROJECT FOLLOW-UP SURVEY

Questions that will be asked of participants during follow-up communication.

1. Have you had a fall since the last time we last spoke (baseline assessemnt and education)?

2. What fall prevention changes have you made since we last spoke?

3. Do you feel the fall prevention education was helpful? If so, how?

4. Would you change anything about the the delivery of information?

5. Is there anything else you would like for me to know?

Fall Prevention Symbol credited to Northeastern University Healthcare Systems

APPENDIX J

The Gerontologist Instructions for Authors

Introduction

The Gerontological Society of America (GSA), the publisher of *The Gerontologist*, was founded in 1945 to promote the scientific study of aging, to encourage exchanges among researchers and practitioners from the various disciplines related to gerontology, and to foster the use of gerontological research in forming public policy. The organization fosters collaboration between physicians, nurses, biologists, behavioral and social scientists, psychologists, social workers, economists, policy experts, those who study the humanities and arts, and many other scholars and researchers in aging. Through networking and mentorship opportunities, GSA provides a professional "home" for 5,500 career gerontologists and students at all levels. More information about GSA.

Aims and Scope of the Journal

The Gerontologist®, published since 1961, is a bimonthly journal of The Gerontological Society of America that provides a multidisciplinary perspective on human aging by publishing research and analysis on applied social issues. It informs the broad community of disciplines and professions involved in understanding the aging process and providing care to older people. Articles should include a conceptual framework and testable hypotheses. Implications for policy or practice should be highlighted. *The Gerontologist* publishes quantitative and qualitative research and encourages manuscript submissions of various types including: research articles, intervention research, review articles, measurement articles, forums, and brief reports. Book and media reviews, International Spotlights, and award-winning lectures are commissioned by the editors.

Please refer below to the Types of Manuscripts Considered for additional information about all types of manuscripts.

Due to the high volume of submissions, we are unable to offer pre-screening advice. Instead, please refer to the aims and scope of the journal to determine if *The Gerontologist* is a suitable journal for your work.

Types of Manuscripts Considered

All manuscripts submitted to *The Gerontologist* should address practice and/or policy implications.

*The word limits listed below include abstract, text, and references.

- Tables and figures are limited to 5 Word pages for all submission types except for Review Articles, for which 10 pages are allowed.
- To manage the word and page counts, authors are encouraged to submit detailed methodology, tables, and/or figures as supplementary material. If your manuscript is accepted, supplementary material is available to readers online only.

a. Intervention Research. An Intervention Research submission describes research that spans the trajectory from intervention development to implementation. Appropriate articles include rigorous early stage development, feasibility, or pilot studies of innovative practices, RCTs, studies of the transportability of efficacious interventions, community testing or trials, and tests of dissemination and implementation strategies. Submissions may be research article length (maximum of 6000 words for quantitative, 7000 words for qualitative or mixed methods), or brief reports (maximum of 2500 words; may be most appropriate for pilot studies). Successful submissions will have the following attributes: (a) a clear theoretical or conceptual framework supporting the intervention and/or the treatment development and implementation process, (b) for implementation research, a description of evidence from rigorous research that the

intervention has efficacy, (c) methodological rigor, including clear articulation of the design and analyses, and (d) integration of implementation considerations regardless of research stage. For more information, please refer to the following editorial: Meeks, S. & Pruchno R. (2017). Practice Concepts Will Become Intervention Research Effective January 2017. *The Gerontologist*. 57(2), 151-152. doi: 10.1093/geront/gnw213

b. Research Articles. Research Articles present the results of original research. These manuscripts may be no longer than 6,000* (7,000* for qualitative studies) words. The word count includes; abstract, text and references. Tables and figures are limited to 5 Word pages. The text is usually divided into sections with the headings: Introduction, Design and Methods, Results, and Discussion and Implications. Subheadings may also be needed to clarify content. Research design and analysis procedures as well as implications for practice or policy must be clearly described.

Qualitative Manuscripts: Qualitative manuscripts should avoid the subheading "A Qualitative Study." See Schoenberg, N., & McAuley, W. J. (2007). Promoting qualitative research. *The Gerontologist*, 47(5), 576–577. doi: 10.1093/geront/47.5.5767 and Schoenberg, N.E., Miller, E.A., & Pruchno, R. (2011)., The Qualitative Portfolio at The Gerontologist: Strong and Getting Stronger. *The Gerontologist* 51(3): 281–284. doi: 10.1093/geront/gnr032

Humanities and Arts: Please refer to the following editorial for additional detail with these types of submission: Kivnick, H.Q. & Pruchno, R. (2011). Bridges and Boundaries: Humanities and Arts Enhance Gerontology, *The Gerontologist*, 51(2), 142-144. doi: 10.1093/geront/gnr007

c. *Review Articles. The Gerontologist* welcomes submissions of state-of-the-art Review Articles (e.g. systematic/scoping reviews, umbrella reviews) and/or in-depth synthesis methodology reviews (e.g. meta-analyses). Manuscripts should be limited to 8,000* words. A systematic review is a

review of a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant research, and to collect and analyze data from the studies that are included in the review. Statistical procedures (i.e., meta-analysis) may or may not be used to analyze and summarize the results of the included studies. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses *Statement (PRISMA) flow diagram and checklist should be included in the submission* (PRISMA checklist and flow diagram are available). Note: Include the checklist as supplementary material only. It is permissible to add a column or space to the checklist that specifies where in the manuscript each component has been followed. Please see the following editorial for additional guidelines on submitting a Review Article manuscript: Heyn, PC., Meeks, S., & Pruchno, R. (2019). Methodological Guidance for a Quality Review Article. *The Gerontologist*. doi: 10.1093/geront/gny123. Review Articles will be published online only (title would appear in a print issue Table of Contents for the journal, but the article would appear online only). Articles will go through our usual peer review and editing processes. They will receive a DOI, be searchable, and will be available electronically.

d. *Measurement Articles.* Measurement articles describe the reporting of sophisticated scale/instrument development procedures (6,000* words; all scales must be freely available for use by researchers). Measurement articles will be published online only (title would appear in a print issue Table of Contents for the journal, but the article would appear online only). Articles will go through our usual peer review and editing processes. They will receive a DOI, be searchable, and will be available electronically.

e. *Brief Reports.* Brief reports are encouraged for significant and innovative papers that are not as long as full research articles, but are equivalent in quality. Manuscripts should be no more than 2,500* words. The word count includes the abstract, text and references.

f. *Forum.* Forum submissions are scholarly review articles or well-documented arguments presenting a perspective on an important topic of interest to *The Gerontologist*'s readers. They are distinguished from Review Articles in that their purpose is not primarily to present a systematic and comprehensive review or synthesis of scholarship, but rather to document or argue for a thesis. The thesis will be supported by theory or will present a new conceptual perspective that will move scholarship forward. Total length should be no more than 5,000* words. The word count includes the abstract, text and references.

g. *On Film and Digital Media.* Please refer to the following editorial: Scheidt, R., Vanden Bosch, J., Kivnick, H.Q., & Pruchno, R. (2012). Launching "On Film and Digital Media". The Gerontologist, 52, 439-440. doi: 10.1093/geront/gns087

h. *Book Reviews.* Book reviews are published in an essay form. Reviews are prepared at the request of the Book Review Editor and are not guaranteed for acceptance prior to submission. Unsolicited book review essays are not accepted. Books for review should be sent to Jamila Bookwala, PhD, Book Review Editor, Department of Psychology, 316 Oechsle Hall Lafayette College Easton, PA 18042 .

i. *Guest Editorials.* Upon occasion, the Editor-in-Chief will invite guest editorials. Unsolicited editorials are not accepted.

The Gerontologist does not publish obituaries, speeches, announcements of programs, or new product information.

Supplement issues of *The Gerontologist* are additional and externally funded issues. Please contact the editorial office at tg@geron.org for further information. *The Gerontologist* also publishes special issues, developed by the editors of *The Gerontologist* within our regularly scheduled bimonthly issues.