

Stand Up To Falling: A Multi-Component Fall Prevention Extension Program

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Abstract

Each year one out of three adults age 65 and older experiences a fall, which leads to a fear of falling, moderate to severe injury, and even death. In addition to the physical and psychological impact, falls are associated with severe economic consequences for individuals, their families, and society at large. The multi-component Stand Up to Falling Extension program emphasizes four preventable risk factors identified by the Centers for Disease Control and Prevention (CDC): physical activity, home safety, healthy vision, and medical management. When properly addressed, each of these factors can reduce and even prevent the likelihood of falls. The program was presented to 1,324 participants in Kentucky by trained Extension county educators. The program demonstrated positive results with participants reporting that they learned ways to prevent falls, planned to make changes to their lifestyles, and that they would recommend the program to others.

Keywords

fall prevention, Extension, education, older adults, disability

Introduction

While preventing falls should not be limited to older adults, as the young and old are at risk, it is an astounding statistic that one out of three older adults, age 65 and over, experiences a fall each year (CDC 2012). Older adults who have previously fallen run an even higher risk of falling again. The risk for physical injury, injury-related death, and the fear of falling also increases with age (CDC 2012; Willard 2011). As a result, falls are a recognized public health and economic problem. Nationally, the total direct costs of fall injuries cost the health care system an estimated \$30.0 billion, a number that is expected to reach \$54.9 billion by 2020 (CDC 2012; Englander,

Hodson, and Terregrossa 1996). Falls also have serious repercussions on the lives of family and friends as injuries and fears related to falling challenge life quality and independence and increase the need for formal and informal caregiving. Given the predicted population increase among older adults, rising numbers of falls and associated costs and burdens are expected to escalate and be a cause of great concern. Yet falls are highly preventable (Gillespie et al. 2009; National Center for Injury Prevention and Control 2008; Stevens 2010).

Evidence-based programming and collaboration

Strong evidence supports the effectiveness of fall prevention programs, in particular those that target multiple risk factors because addressing just one is not enough by itself (Gillespie et al. 2009; Gillespie et al. 2012; National Center for Injury Prevention and Control 2008; Stevens 2010). With a recognized need to target community-dwelling older adults with fall prevention information and intervention and an understanding that it cannot be done alone, the Kentucky Safe Aging Coalition was formed in 2008 and Family and Consumer Sciences (FCS) Cooperative Extension joined the effort. Kentucky is one of 42 states dedicated to the National Falls Free Initiative, led by the National Council on Aging (NCOA). By avoiding isolated efforts, this collaboration keeps everyone involved abreast of issues, local resources, and effective means to deliver programs. Because of the state's unique demographic—Kentucky is nearly equally represented by rural (52 percent) and urban (48 percent) populations, in addition to having an aging population (65+ years old) of approximately 13.5 percent (U.S. Census Bureau 2013) — the coalition quickly recognized the value in FCS' presence in all 120 counties. As a result, the fall prevention program, Stand Up to Falling, was created and adopted as an FCS curriculum. The program was designed to be an introductory lesson that increased knowledge and encouraged ongoing participation in reducing fall risk behavior through established programs such as *A Matter of Balance*. Stand Up to Falling was derived from the CDC's conceptual research that highlighted the importance of physical activity, medical management, healthy vision, and home safety as best practices to prevent falling.

This paper highlights the ways in which Cooperative Extension adapted this conceptual model for fall prevention, developed a successful education program, and collected preliminary evaluation data. With participant data and program feedback, the next step will include the examination of behavior change over time.

Curriculum development

In 2009, Kentucky FCS implemented the evidenced-based program *A Matter of Balance* and encouraged participation through Extension with FCS's own master trainers and lay leaders. *A Matter of Balance* is a nationally recognized program from the Boston University that emphasizes practical strategies to increase activity and reduce the fear of falling. It is supported

by the NCOA, CDC, and many state health departments. The program includes eight two-hour sessions for small groups led by trained facilitators. While positively received by agents and participants alike, the time commitment of the program was recognized and the need for additional fall prevention material was acknowledged as a way to reach wider Extension audiences. It was important for a new fall prevention program to be straightforward, brief, flexible, and easy to train and present. In addition, the curriculum needed to encourage ongoing participation in reducing fall risk behavior through established evidenced-based programs, such as *A Matter of Balance*.

Working with the state fall prevention coalition combined with examination of the first edition of the CDC Compendium of Effective Fall interventions (2008), which includes detailed information about scientifically proven fall prevention interventions, it was decided that Stand Up to Falling would highlight four preventable risk factors identified by the CDC: physical activity, home safety, healthy vision, and medical management. The curriculum was therefore focused around these four risk factors. The PowerPoint presentation and presenter script included an introduction to fall prevention and its importance, general and state-wide statistics, an overview of why falls occur, the direct and indirect costs of falling (quality of life and financial consequences), specific detail about each preventable risk factor and ways to reduce risk, and encouragement to embrace on-going participation in fall prevention programs, such as *A Matter of Balance*. The program also highlighted the proper procedures for getting up from a fall. All program materials were located on an internal Web site available only to agents. The materials included: marketing resources (recruitment flyer, information releases, and radio public service announcements); a facilitator guide; PowerPoint presentation, including a detailed script and group activity ideas; seven peer-reviewed fact sheets; one post-session evaluation; featured program agent questions; an example impact or “Success Story” statement; lists of potential community partners; and a logic model. In regard to curriculum activities, each section of the program has opportunity for group discussion. For example, the program ice breaker encourages participants to share personal stories. “How many of you have fallen or know someone who has?” Each risk factor includes an activity as well. The physical activity section encouraged a group exercise activity; the home safety section included a home safety checklist; the healthy vision section included a task involving vision impairment goggles; and the medical management section included a medical journal that can be used with health care providers. In addition, three disability awareness kits were available for checkout to help support the curriculum and additional optional activities. The kits and correlating activities offered a variety of sensory and mobility impairment exercises in addition to assistive technology and environmental design ideas on how to make living with a disability or impairment safer and more autonomous. While not mandatory, many agents used the simulation activities to help illustrate the link between impairment and fall risk.

Materials for the program were designed with flexibility in mind while providing slide presentations, scripts, and activities that were standardized for all agents. The agents used their flexibility to present the materials in a fashion most appropriate for their specific audience. For example, some agents taught Stand Up to Falling as one 45-60 minute program while others broke it down by risk factor and taught it as four individual shorter units. Regardless of delivery, the same post-program material and evaluation instrument was implemented. While the curriculum was designed to be self-explanatory to agents teaching the program, the majority of agents received training by state specialists at an all-state FCS in-service workshop ($n=40$), participated in a webinar training ($n=13$), or talked with specialists on a one-on-one basis ($n=3$). A pre-recorded training webinar, located on the internal agent website was made available, but zero agents took advantage of that training opportunity (reportedly due to time and the self-explanatory nature of the curriculum). While we recommend some degree of training so that questions can be answered, agents have reported comfort with the materials due to their clarity.

- “It is amazing. You did a wonderful job with providing us with not only a very good set of slides but also a wonderful set of background notes that provided an in-depth education into the topic that was all right there for us to use! Thank you so much, [participants] loved the program” (veteran agent).
- “The materials were very helpful, especially the script that accompanied the PowerPoint. The lesson was very informative, too, and the ladies who attended seemed to enjoy it” (new agent).

Agents also reported appreciation for a curriculum that did not require a mandatory training prior to teaching it. This allowed agents more flexibility in offering the program as needed in their communities as time allowed.

Stand Up to Falling targeted older adults (age 65+), but the program can also be appealing to those with disabilities or illnesses that increase fall risk (such as Parkinson’s disease), middle-aged adults (today’s caregivers and tomorrow’s care recipients); grandchildren living with grandparents; formal and informal caregivers for people at risk of falling, health professionals, participants and staff at senior centers, staff and administration in long-term care housing, chambers of commerce and other business networking groups, and disability and community organizations. Agents reported using the program the most in senior centers, homemaker groups, and long-term care facilities. Each trained agent received a minimum of twenty-five Stand Up to Falling Cooperative Extension nightlights to use as participant incentives in their counties.

Methods

The goals of the program were to help participants (1) recognize the consequences of falling (e.g., death, disability, dependence, fear, isolation, decreased confidence); (2) learn four preventable risk factors of falling: physical exercise, home safety, healthy vision, and medication management; (3) learn how to address each risk factor to lower chances of falling and to prevent falls from occurring; (4) acquire the proper measures to get up from a fall; and (5) recognize the importance of participating in ongoing evidenced-based national fall management programs, such as *A Matter of Balance*, and encourage participation through Cooperative Extension's master trainers and lay leaders; and (6) collect general fall data, including demographics and reported fears of falling. With these goals in mind, Extension administrators and agents selected Stand Up to Falling for statewide focus starting in 2011. Within one year (July 1, 2011, through June 30, 2012) twenty-six agents offered the program to 1,324 participants.

Participants were recruited through word of mouth, program flyers, information releases in newsletters and local newspapers, and public radio consumer tips. There was no cost to take part in the program and all program material was provided to participants in a singular session that lasted approximately 60 minutes or shorter multiple sessions that broke down each fall risk factor.

Results

The 1,324 participants in the program completed a brief, twenty-three question post-program evaluation instrument. Only six of the twenty-three questions, however, were mandated for state reporting purposes. In regard to these six questions, the participants responded that as a result of participation, they (1) had a better understanding of ways in which to reduce the risk of falling (100 percent); (2) would protect their vision or see an eye doctor (62.3 percent); (3) would make changes to their home to reduce the risk of falling (67.8 percent); (4) would review their medication with a doctor or pharmacist (68.5 percent); (5) would be more physically active (64.7 percent); and (6) learned how to safely get up from a fall (75.1 percent). A more detailed description of the results can be found in Table 1.

Table 1. Agent reported program goals data

[Table 1 Summary: This table highlights the Stand Up to Falling post evaluation summary data that agents reported on program outcomes.]

Program Objectives	
Program goals* (%)**	➤ Better understand how to reduce fall risk: $n = 1,324$ (100.0)

	➤ Plan to get eyes checked: $n = 825$ (62.3)
	➤ Plan to modify home environment: $n = 898$ (67.8)
	➤ Plan to review medications with medical provider: $n = 907$ (68.5)
	➤ Plan to engage in physical activity: $n = 857$ (64.7)
	➤ Know how to safely get up from a fall: $n = 994$ (75.1)

Note.

* Data is based on agent reporting. No missing data was reported.

** Percentages reflect the number of responses divided by the number of agent reported participants ($n = 1,324$).

Through the Stand Up to Falling program, FCS Cooperative Extension highlighted ways in which the risk of falling can be reduced to help seniors maintain independence and quality of life. As a result of the program, one participant shared, "I don't want to fall. I want to stay as active and independent as possible." Other participants attended because of aging parents or reported fears of falling.

Agents who presented the program and collected data were strongly encouraged to send the completed surveys to the state family life specialist for further analysis of the entire twenty-three-item post evaluation instrument but not every agent followed through as this step went beyond the state program data for which they were mandated to report. As of May 1, 2013, 360 surveys had been received for further analysis. Preliminary analysis of this detailed data revealed that the majority of participants were 65+ year old white women who had fallen at least one time, had a fear of falling and limited activity due to their fall and/or fear. While the results confirm national trends, the survey also contributed to information regarding numbers of falls, fear of falling, limiting activity due to a fall(s) and/or the fear of falling, and visiting or reporting falls to medical professionals. Such data is important because it allows for a more realistic examination of the demographics and characteristics of those who are falling (e.g., beyond those who report it to health care providers). For specific full survey results, including participant demographics, see Table 2.

Table 2. Returned survey fall data and participant demographics

[Table 2 Summary: This table highlights the Stand Up to Falling post evaluation summary data that agents voluntarily sent to the state specialists. This data created a better picture of falls, the reporting of falls, and the fear of falling.]

Demographics	
Age (%)*	<ul style="list-style-type: none"> ➤ Ages 30-39: <i>n</i> = 10 (2.8) ➤ Ages 40-54: <i>n</i> = 24 (6.7) ➤ Ages 55-64: <i>n</i> = 72 (20.0) ➤ Ages 65-74: <i>n</i> = 131 (36.4) ➤ Ages 75-84: <i>n</i> = 88 (24.4) ➤ Ages 85+: <i>n</i> = 27 (7.5) ➤ Missing: <i>n</i> = 7 (1.9)
Gender (%)*	<ul style="list-style-type: none"> ➤ Male: <i>n</i> = 27 (7.5) ➤ Female: <i>n</i> = 323 (89.7) ➤ Missing: <i>n</i> = 10 (2.8)
Race (%)*	<ul style="list-style-type: none"> ➤ White: <i>n</i> = 328 (91.0) ➤ Black: <i>n</i> = 15 (4.2) ➤ Missing: <i>n</i> = 14 (3.9)
Living Situation (%)*	<ul style="list-style-type: none"> ➤ Live in a house or apartment: <i>n</i> = 313 (86.9) ➤ Live in independent senior housing: <i>n</i> = 12 (3.3) ➤ Missing: <i>n</i> = 26 (7.2)
	<ul style="list-style-type: none"> ➤ Live with a spouse/partner: <i>n</i> = 182 (50.6) ➤ Live alone: <i>n</i> = 122 (33.4) ➤ Live with informal caregiver: <i>n</i> = 4 (1.1) ➤ Live with adult child: <i>n</i> = 18 (5.0) ➤ Live with a grandchild: <i>n</i> = 12 (3.3) ➤ Missing: <i>n</i> = 27 (7.5)
Participation	
Reasons for Participation** (%)*	<ul style="list-style-type: none"> ➤ Never fallen, but want to protect self from falls: <i>n</i> = 55 (15.3) ➤ Never fallen, but have a fear of falling: <i>n</i> = 19 (5.3) ➤ Previously fallen: <i>n</i> = 140 (38.9) ➤ Fallen and have fear of falling again: <i>n</i> = 76 (21.1) ➤ Caregiver for someone at risk of falling: <i>n</i> = 17 (4.7) ➤ Caregiver for someone who fell: <i>n</i> = 20 (5.6)

	<ul style="list-style-type: none"> ➤ Caregiver for someone with a fear of falling: $n = 6$ (1.7) ➤ Seeking knowledge to be better caregiver: $n = 50$ (13.9) ➤ Missing: $n = 30$ (8.3)
Fall Reports	
Fall experience within last year (%)*	<ul style="list-style-type: none"> ➤ Never fallen: $n = 83$ (23.1) ➤ 1-2 times: $n = 118$ (32.8) ➤ 3-4 times: $n = 25$ (6.9) ➤ 5+ times: $n = 4$ (1.1) ➤ Fallen, but not in past year: $n = 99$ (27.5) ➤ Missing: $n = 6$ (1.7)
	<ul style="list-style-type: none"> ➤ Limited activity due to a fall(s): $n = 95$ (26.4) ➤ Missing: $n = 24$ (6.7)
	<ul style="list-style-type: none"> ➤ Reported fall to a medical professional: $n = 88$ (24.4) ➤ Reported fall to a family/friend/neighbor: $n = 204$ (56.7) ➤ Reported fall to no one: $n = 22$ (6.1) ➤ Missing: $n = 29$ (8.1)
Fear of Falling	
Fear of falling (%)*	<ul style="list-style-type: none"> ➤ Have a fear of falling: $n = 179$ (49.7) ➤ Missing: $n = 32$ (8.9)
	<ul style="list-style-type: none"> ➤ Have limited activities due to fear: $n = 111$ (30.8) ➤ Missing: $n = 22$ (6.1)
	<ul style="list-style-type: none"> ➤ Visited a physical or occupational therapist to help prevent falls: $n = 79$ (21.9) ➤ Missing: $n = 27$ (7.5)
Program Objectives	
Program goals (%)*	<ul style="list-style-type: none"> ➤ Better understand how to reduce fall risk: $n = 314$ (87.2) ➤ Missing: $n = 43$ (11.9)
	<ul style="list-style-type: none"> ➤ Plan to get eyes checked: $n = 277$ (76.9) ➤ Missing: $n = 54$ (15.0)
	<ul style="list-style-type: none"> ➤ Plan to modify home environment: $n = 271$ (75.3)

	➤ Missing: $n = 55$ (15.3)
	➤ Plan to review medications with medical provider: $n = 253$ (70.3)
	➤ Missing: $n = 61$ (16.9)
	➤ Plan to engage in physical activity: $n = 301$ (83.6)
	➤ Missing: $n = 49$ (13.6)
	➤ Know how to safely get up from a fall: $n = 302$ (83.9)
	➤ Missing: $n = 54$ (15.0)

Note.

* Percentages reflect the number of responses divided by the number of surveys returned ($n = 360$). All survey data was used, including data in which respondents marked more than one response to a question.

** Respondents were asked to check all that apply.

Discussion

After reviewing multiple best practices approaches and consulting with the Kentucky fall prevention coalition, an Extension curriculum was created with the intention to raise awareness about falls, the consequences of falls, and fall prevention. The aim was to encourage people who have fallen and those at fall risk to increase their knowledge and inspire participation in on-going programs, such as *A Matter of Balance*. Because a lot of older adults are falling, we assumed that people would attend the Extension programs. But we learned that it takes time to build networks and the credibility in the program to make it effective. Change cannot happen overnight, thus we remain encouraged about the program's worthiness as it is a brief, straightforward multi-component lesson that translates and disseminates evidenced-based research regarding fall prevention. Such programming has demonstrated effectiveness to reduce the direct and indirect costs of falls. In the first year, the program was successfully delivered to 1,324 participants. We would like to see these numbers increase in years to come, but recognize the need to change the marketing strategy and help agents target an audience broader than seniors.

In the early stages of this Extension model, the positive intent to change behavior demonstrates that there is a need for fall prevention programming and that Stand up to Falling is a successful Extension curriculum. The majority of participants reported not only suffering from a fall, but also a fear of falling. "This program was good for me because I live alone. No one will find me [if I fall]." A fear of falling discouraged many participants from physical activity, which can lead

to more serious health and safety consequences. The Stand Up to Falling program not only increased fall prevention awareness, but the preliminary evaluation data can be used to contribute to the bigger picture of falling. Accurate fall data is important because it allows for a more realistic examination of the demographics and characteristics of those who are falling (e.g., beyond those who report it to health care providers) and can guide effective fall prevention policies (Nishita and Choi, 2007). Kentucky Extension's evaluation efforts not only examined demographics and number of falls, it also obtained a clearer picture regarding those who are not reporting their falls and those who are limiting activity or isolating themselves because of the fear of falling. One participant shared, "I've stopped walking our dog due to my fear of falling."

Results also demonstrate that an agent's unique position as a county educator creates an ideal opportunity for outreach and valuable data collection to further support the impact of not only fall prevention education, but Extension programming in general. As a result, continued and new partnerships at the state level are expected to develop. It is also realistic to think that Extension's work will enrich fall data sets, especially with past successes in connecting with hard-to-reach audiences, such as those participants living in rural areas (Stephenson 2012).

As we continue to develop the Kentucky Extension model for fall prevention, the next step is to conduct post follow-up surveys in order to compare intention with actual behavior change. It is also important to further investigate why home and environmental modification in addition to medication management ranked the lowest intended behavior among participants. A future longitudinal study should also include an experimental design in which the impact of the program on the rate of falls and fear of falling is examined among those who participated in a public fall prevention education program compared to those who were directed and encouraged to read about fall prevention on their own.

This study was limited to the surveyed participants and only examined descriptive results following individuals participating in the program. Overall, however, the program demonstrated positive results with the majority of respondents reporting their intent to make behavioral changes that would reduce the risk of falling. While it remains a challenge to accurately measure the number of falls prevented through fall prevention education, we do know that programs have the potential to increase positive behavior, which in turn can help to reduce falls and fall risk (Costello and Edelstein 2008). Given the expected rise in the older adult population and the high costs associated with falls, there is a great economic incentive to provide fall prevention education. Fall reduction could prove economically beneficial reduce the amount spent by both individuals and the healthcare system. Stand Up to Falling proves to be an effective fall prevention educational program that increases knowledge gain. Both Extension organizations and other agencies interested in fall prevention should consider implementing the curriculum.

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