The Effectiveness of a Community-Based Program for Reducing the Incidence of Falls in the Elderly: A Randomized Trial

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OBJECTIVES: To test whether Stepping On, a multifaceted community-based program using a small-group learning environment, is effective in reducing falls in at-risk people living at home.

DESIGN: A randomized trial with subjects followed for 14 months.

SETTING: The interventions were conducted in community venues, with a follow-up home visit.

PARTICIPANTS: Three hundred ten community residents aged 70 and older who had had a fall in the previous 12 months or were concerned about falling.

INTERVENTION: The Stepping On program aims to improve fall self-efficacy, encourage behavioral change, and reduce falls. Key aspects of the program are improving lower-limb balance and strength, improving home and community environmental and behavioral safety, encouraging regular visual screening, making adaptations to low vision, and encouraging medication review. Two-hour sessions were conducted weekly for 7 weeks, with a follow-up occupational therapy home visit.

MEASUREMENTS: The primary outcome measure was falls, ascertained using a monthly calendar mailed by each participant.

RESULTS: The intervention group experienced a 31% reduction in falls (relative risk (RR) = 0.69, 95% confidence interval (CI) = 0.50–0.96; $P = .025$). This was a clinically meaningful result demonstrating that the Stepping On program was effective for community-residing elderly people. Secondary analysis of subgroups showed that it was particularly effective for men (n = 80; RR = 0.32, 95% CI = 0.17–0.59).

CONCLUSION: The results of this study renew attention to the idea that cognitive-behavioral learning in a small-group environment can reduce falls. Stepping On offers a successful fall-prevention option. **J Am Geriatr Soc 52:1487–1494, 2004.**

Key words: accidental falls; elderly; prevention; cognitive-behavioral; small-group intervention

Falls among the elderly represent a major economic and social problem.[1–3] Falls themselves and the belief that one might fall in fall-risk situations can result in restriction of mobility and activity, feelings of helplessness, loss of confidence, depression, and institutionalization.[2]

There is now good evidence that multifactorial interventions conducted by health professionals with skills in geriatric medicine can prevent falls.[4] Multifaceted interventions have generally been consistent in showing an effect, particularly if they are targeting persons at risk[5] and include several intervention approaches.[6–9]

Studies of behaviorally oriented educational interventions using group processes have had limited success in reducing falls.[10,11] One of the educational program trials[10] to reduce falls demonstrated a significant trend (16% fewer reported falls), but overall, this trial was not sufficiently effective to be clinically useful. There is support that, for an important reduction in falls risk, an intervention needs to demonstrate at least a 30% reduction.[5,12] In addition, the evidence base for falls prevention has only been established over the previous 10 years, so the role of educational programs in falls prevention warrants reexamination.

In this paper, a study of the effectiveness of Stepping On,[13] a small-group based educational program, is reported to see whether it was effective in reducing falls in at-risk people living at home.

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METHODS

Ethics approval to conduct the study was obtained from the University of Sydney and Central Sydney Area Health Service human ethics committees.

Subjects

The planned study population was community-living men and women aged 70 and older who had fallen in the previous year. Some people who responded to the recruitment advertisement stated that they had not fallen in the previous year but were concerned about falling. To ensure adequate subject numbers, the inclusion criteria were extended to include these people who considered themselves at risk of falling. Exclusion criteria were cognitive problems associated with dementia (measured using three or more errors on the Short Portable Mental Status Questionnaire[14]) and being homebound and unable to independently leave home. Subjects were also required to have conversational English.

Methods of recruitment, reported in detail elsewhere (submitted for publication), included distribution of promotional materials; health professional referrals; media advertisements and editorials in local newspapers; database mailouts by general medical practices, the Department of Veterans Affairs, and a football club; and presentations to community organizations. For all recruitment strategies, people who were interested were invited to contact the authors by mail or telephone. A research assistant (RA) then telephoned them to explain the study and to screen for eligibility to participate in the study by asking about their history of falls.

Baseline Measures

The RA completed baseline assessment of all subjects at the person's home as soon as possible after recruitment and before randomization.

Baseline assessment comprised a background questionnaire of demographics, fall and health history, a functional measure of mobility and balance (the Get-up and Go Test),[15] and the Rhomberg test of balance with eyes open and closed. Baseline assessments of secondary outcome measures were also conducted: the 36-item Short Form (SF-36) Health Survey, which measures a persons perception of their health across mental and physical health domains;[16] the Modified Falls-Efficacy Scale[17] (MFES), which evaluates confidence in avoiding falls when performing basic activities of daily living; and the Mobility Efficacy Scale[18] (MES), which assesses efficacy beliefs over a wider continuum of functional tasks that have a greater degree of postural challenge than the MFES. The item "Walk down three snowy steps without a handrail" was altered to "Walk down three wet steps without a handrail." A 10-point scale of "not at all" to "completely confident" was used with the MES and MFES. The falls self-efficacy measures were of interest as a secondary measure, being a core concept of the program.[13] Also assessed at baseline and follow-up were the Physical Activity Scale for the Elderly (PASE)[19,20] and the Worry scale,[21] designed for use in community-dwelling elderly to identify the degree to which aspects of daily lives are troubling.

The Intervention

Stepping On[13] is a multifaceted community-based program using a small-group learning environment to improve fall self-efficacy, encourage behavioral change, and reduce falls. (See Appendix A for an overview of the program.) The aim was to facilitate the older subjects taking control, explore different coping behaviors, and encourage follow through of safety strategies in their everyday lives. Thus, the conceptual basis of the program incorporated using strategies to enhance self-efficacy[22] in fall-risk situations, a decision-making theory to guide participants in exploring barriers and options to risk management,[23,24] and the use of adult learning principles[25] to develop knowledge and skills, recognizing that older adults have the capacity for learning and change. A variety of learning strategies were used. These included raising awareness by being more informed about factors that contribute to risk; targeting those behaviors that have the most effect on reducing risk and reinforcing their application to the individual's home and community setting; and using specific techniques such as story telling, mastery experiences, and the group process as a learning environment.

An occupational therapist experienced in group work and with 12 years experience in geriatrics facilitated the program. A team of content experts, trained by the first author in relevant aspects of falls prevention to supplement their content knowledge, introduced key content areas.[13] These included lower-limb balance and strength exercises known to be effective in fall prevention,[26] coping with visual loss and regular visual screening,[27] medication management,[28,29] environmental and behavioral home safety,[30,31] and community safety.[32] Information was also shared and reinforced within the context of the group. Each session provided time for reflection and sharing accomplishments and ended in planning action and homework for the next week. Each session also included practicing or reviewing some of the exercises, and one session included a community mastery experience during which community mobility and discrete skills (e.g., negotiating grass or curb ramps) were practiced.

The program, averaging 12 participants in each group, took place over a 7-week period at a predetermined community venue. A follow-up home visit took place within 6 weeks of the final program session. The occupational therapist listed any actions that participants reported that they had self-initiated during and since the program as well as actions and recommendations that arose on the home visit. There was a total of 15.5 hours intervention constituting the seven 2-hour program sessions (including one community mobility session) and the individual home visit. A booster session, conducted 3 months after session seven, lasting 1.5 hours, occurred at the program venue.

Randomization

Randomization was stratified in blocks of four, according to sex and number of falls in the previous 12 months (0–1 or >1 fall) and was conducted by a researcher not involved in subject screening or subject assessment.

Ninety percent (n = 141) of those randomized to the intervention group attended at least five of the seven sessions, with only 3% (n = 5) not attending any sessions.

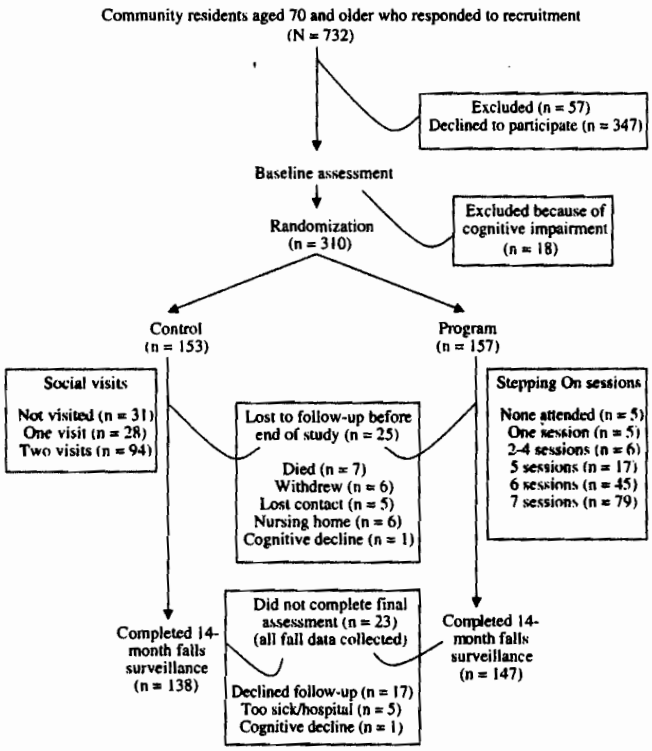

Figure 1. Flow chart tracking subjects through the study.

Further details are provided in Figure 1—a flow chart tracking subjects through the study. Subjects allocated to the control group received up to two social visits from an occupational therapy student (as part of an aging-at-home fieldwork project); these visits were conducted during the same time as the program. Students were instructed not to discuss falls or falls prevention with the subjects.

Follow-Up Measures

The major dependent measure in this study was the occurrence of falls, defined as an event that results in a person unintentionally coming to rest on the ground, floor, or other lower level.[33] Evaluation of falls occurred for each subject from baseline up to 14 months postrandomization using a self-report falls schedule similar to those used in other falls research.[6,31] The schedule consisted of a monthly tear-off postcard calendar, with the subject's study identification number, and was preaddressed and stamped. Subjects were asked to record an "N" on each day that they did not fall and an "F" if they had a fall. If a fall was reported, the RA telephoned the subject to ascertain whether the fall met the study definition. If the calendar was not returned within 2 weeks of the end of the month, the RA telephoned the subject to complete the schedule.

The RA, who was blind to group allocation, conducted the 14-month follow-up assessment. The follow-up assessment repeated the secondary outcome measures described earlier, with the addition of the 30-item Falls Behavioral (FaB) Scale for older people.[34] The FaB was developed specifically for this study to evaluate behavioral factors that could potentially protect against falling. FaB scores ranged from 1 to 4, with a score of 1 applying to the least protective behaviors and a score of 4 applying to the most protective behaviors. Subjects were also asked about the number and type of medications they were currently using and whether they had had their vision assessed since the baseline assessment. At the conclusion of the follow-up assessment, the RA opened a sealed envelope that contained a copy of the occupational therapist's list of actions/recommendations (program) or a dummy list (controls). This sealed envelope and dummy list meant that it was not obvious to the RA whether the person was allocated to the control or intervention and thus ensured that she remained blinded to group allocation during final assessment. Program participants were asked about their follow through with the home visit recommendations and their adherence to the program exercises.

Loss to follow-up (Figure 1) for the primary outcome (falls) was low, with only 8% (25/310) of subjects not completing the full 14 months of falls follow-up and only 4% of follow-up time having missing fall data. Loss to follow-up was higher for secondary outcomes (48/310, 15.5%).

A comparison was made between the control and program groups to ascertain whether there was any difference between them in their adherence to the falls surveillance system. Thirty-seven percent (n = 56) of control subjects and 36% (n = 57) of program subjects required no follow-up call during the study. There was no difference between control and program groups in the number of telephone calls that had to be made because of failure to send in the falls calendar ($P = .89$).

Data Analysis

The required sample size was based on the anticipated effect of the intervention on fall rate, with a power of 80% and an alpha of 5%. It was estimated that about 40% of control subjects would have a fall during 1 year of follow-up. A total of 300 subjects (150 per group) would allow us to detect a 40% relative reduction in fall rate (from 40% to 24%) in the intervention group; 310 subjects were recruited.

All data were analyzed using intention to treat. For the primary analysis of falls, two different statistical methods were used: (1) comparison of the proportions of people in the intervention and control groups who had one or more falls during the 14 months of follow-up and the proportion of those who had two or more falls during follow-up (cumulative incidence ratios) and (2) all falls (negative binomial regression model). Most emphasis was given to the negative binomial regression model. Variables included in the model were group allocation, number of falls during the study, and exposure time. The negative binomial regression model is a similar method to survival analysis because it takes into account the total number of falls and the length of time of follow-up[35,36] but is different in that it uses a binomial distribution rather than the Poisson distribution. The current thinking is that the binomial distribution is a better fit for the type of recurrent events that may be more likely to occur in some individuals than others.[35,36] Persons who fall are more likely to fall again.[6]

No subgroup analysis was specified in the original study protocol, but before analysis it was decided to conduct separate analysis for the following subgroups: age (<75 vs 75), functional mobility and balance using the Get

Up and Go test to define groups, sex, and history of falls. These are known risk factors for falls.[37]

For secondary outcome variables (MES, MFES, SF-36, PASE, and Worry scale) change scores (follow-up score minus baseline score) were analyzed using independent samples *t* tests. For the FaB, only scores at follow-up were calculated because the scale was not available at the time of baseline assessment.

Analysis was performed using SPSS, version 10 (SPSS, Inc., Chicago, IL), except for the negative binomial regression model, which was performed using Stata version 7.0 (Stata Corporation, College Station, TX).

RESULTS

Recruitment was conducted over a 26-month period, closing in October 2001. It centered around six inner city metropolitan localities within Central Sydney Area Health Service, two in eastern Sydney, and one in Newcastle, a satellite city north of Sydney. Figure 1 is a flow chart that indicates the number of subjects responding to recruitment and subsequently recruited. Of those persons not included in the study because of personal reasons, 37% were excluded because they were unavailable on the days the program was run.

Most baseline characteristics were similar in the two groups (Table 1). There was a difference in numbers of participants with a previous hip fracture. Data were reanalyzed, adjusting for history of hip fracture, with no differences in results (data not shown). Comparison of the total recruited sample with available population measures is reported elsewhere (submitted for publication). The comparison showed that the sample had a lower perceived physical functioning status but was representative of the general older population in terms of social and emotional status as measured using SF-36 scores (Table 2).

Median length of follow-up for all subjects was 429 days (range 2–529 days; interquartile range 418–429 days). After 14 months of follow-up, there had been 255 falls in the control group and 179 falls in the intervention group. Eighty-nine (58%) control subjects and 82 (52%) program subjects reported one or more falls, and 53 (35%) control subjects and 40 (26%) program subjects reported two or more falls during follow-up. There were three control subjects and two intervention subjects with more than 10 falls. Figure 2 shows the number of falls reported per month for each group.

Table 1. Baseline Comparisons of Characteristics of Control and Program Subjects

Characteristic	Control (n = 153)		Program (n = 157)	
	n (%)			
Female	113	(74)	117	(74)
Falls in past 12 months				
0	53	(35)	54	(35)
1	25	(16)	27	(17)
≥ 2	75	(49)	76	(48)
History of stroke	27	(18)	27	(17)
History of knee arthritis	52	(34)	57	(36)
History of hip fracture	15	(10)	9	(6)
Use psychotropic drugs	28	(18)	35	(22)

Falls Outcome

The main results of the study for all subjects and for the subgroups are shown in Table 3. Results are given using three different methods, with a statistically significant finding (relative risk (RR) = 0.69) for analysis that accounted for multiple falls and follow-up time (negative binomial regression model).

Subgroup analyses showed significant effects in older subjects, in men, in those with intermediate levels of functional mobility and balance, and in those with previous falls, but the only statistically significant interaction was for sex ($P = .003$).

Secondary Outcomes

Secondary outcome results are summarized in Table 4. The program participants maintained their confidence in their ability to avoid a fall during a variety of functional daily living tasks over the follow-up period, whereas the control group experienced a decrease in confidence (MES, $P = .042$). There was no difference in their self-efficacy for the more home-based daily living activities (MFES). Program participants used more protective behavioral practices than the control subjects (FaB, $P = .024$). Physical activity levels decreased in the control group to a greater degree than the program participants, but this difference was not statistically significant ($P = .06$). There were no differences between the control and program subjects in their perceptions of physical or mental health or in their worries about a range of health, social, and financial matters.

Adherence

Adherence was measured in four key content areas: strength and balance exercises, having a routine vision examination, number of medications and psychotropic drugs used, and recommendations arising from the follow-up home visit. At the end of 14 months, 59% (n = 77) of program participants were still doing their exercise routinely, although only 41% (n = 53) were continuing to do the strength exercises with ankle cuff weights. A greater proportion of the subjects who did not have a vision examination before randomization initiated a vision assessment during the follow-up period (program n = 21 (72%), control n = 13 (42%), chi-square (χ^2) = 5.67, $P = .02$). The total number of medications taken was similar at follow-up and baseline for both groups, which a nonsignificant analysis of mean change scores confirmed ($P = .55$), but control subjects (n = 20, 16%) were more likely to start taking a new psychotropic drug than program participants (n = 11, 8%) ($\chi^2 = 6.4$, $P = .04$). Seventy percent (n = 80) of program participants adhered to at least 50% of the home-visit recommendations. Recommendations included removing or modifying home fall hazards such as removing clutter, increasing lighting levels, applying nonslip tape to step edges, and fixing pathways. The most commonly reported self-initiated action reported by the participants at the time of the home visit was behaviors associated with community mobility (28%, n = 153), such as heel-toe walking and

Table 2. Baseline Comparisons of Mean Scores for Characteristics of Control and Program Subjects Measured in Continuous Scales

Characteristic	Control (n = 153)	Program (n = 157)
	Mean ± Standard Deviation	
Age	78.47 ± 5.66	78.31 ± 5.26
Number of falls past 12 months	2.53 ± 3.84	2.19 ± 2.94
Number of people in household	1.50 ± 0.81	1.61 ± 1.04
Total number of medications	4.33 ± 2.83	4.37 ± 3.05
Days in bed previous 2 weeks*	0.19 ± 0.73	0.43 ± 1.68
Hospital admissions in past year	1.60 ± 0.49	1.66 ± 0.47
Short Portable Mental Status Questionnaire	9.77 ± 0.58	9.78 ± 0.50
Rhomberg balance, eyes closed*	1.76 ± 0.82	1.74 ± 0.82
Get up and go test†	2.11 ± 1.11	1.92 ± 0.99
Modified Falls Efficacy Scale	123.04 ± 22.80	123.93 ± 22.00
Mobility Efficacy Score	66.75 ± 26.28	65.42 ± 26.28
Physical Activity Scale for the Elderly score	79.19 ± 54.01	75.52 ± 43.93
Worry scale	0.43 ± 0.45	0.47 ± 0.55
SF-36 PCS‡	38.79 ± 10.74	38.37 ± 10.84
SF-36 MCS‡	54.29 ± 10.26	53.21 ± 11.08

* Missing data, max three persons.
† Get up and go measured as a rank-order scale.[16]
‡ Analyzed using weights from the Australian Bureau of Statistics 1995 Health Survey.
SF-36 = 36-item short form; PCS = physical component survey; MCS = mental component survey.

scanning ahead for hazards when walking (other data not reported).

DISCUSSION

The intervention group's reduction in falls of 31% ($P = .025$) indicates that the Stepping On program was effective for community-residing elderly people.

The analysis of RR for two or more falls, using more traditional methods, supports the results for the negative binomial regression, which accounts for multiple falls. The RR of one or more falls was not statistically significant.

Based on previous research,[5,31] recruitment targeted people with a history of falling, and the results have supported this approach. The results add to the growing support for the effectiveness of multifactorial programs.[6,7,9] Although an at-risk population was targeted, it was a relatively healthier, less-frail group than recruited in some of the previous successful multifactorial interventions. For example, one study[6] excluded persons who did vigorous activity or walked for exercise, and another study[9] recruited accident and emergency patients. The current study sample was also a younger group than the previous study[26] of the home-based exercise program, which recruited women aged 80 and older.

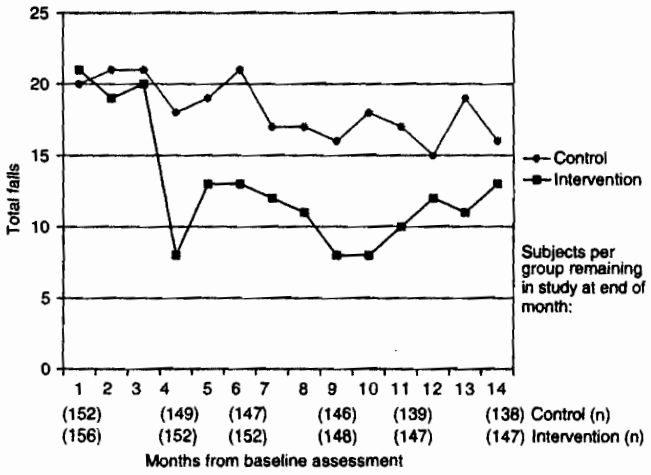

Figure 2. Falls per month for control and intervention groups.

This study places back on the agenda the viability and efficacy of educational programs, at least a particular type of education small-group program (one that uses a cognitive-behavioral approach to increase knowledge and change attitudes and behaviors). This program was based on an active rather than a prescriptive approach, promoting personal control and problem solving, which provides opportunity for individuals to make behavioral changes.

The effectiveness of Stepping On in comparison with the earlier study[10] trial of the Safety After Fifty Evaluation (SAFE) program may have been because of targeting a higher-risk group (SAFE recruited all persons aged 60 and older, regardless of falls risk), improved current knowledge of specific fall prevention activities (such as more-specific lower-limb balance and strengthening exercises or the inclusion of additional preventive activities related to risk factors such as community safety or coping with low vision), or a longer intervention period (seven 2-hour Stepping On sessions, compared with four 90-minute SAFE sessions).

The participants of the Stepping On program used more protective behaviors (as measured using the FaB scale), which seems to have been sufficient to provide added protection from falling in situations related to everyday

Table 3. Falls During 14 Months of Follow-Up in All Subjects and in Subgroups

Subject	n	Relative Risk (95% Confidence Interval)		
		≥1 Falls*	≥2 Falls*	All Falls†
All subjects	310	0.90 (0.73–1.10)	0.74 (0.52–1.04)	0.69 (0.50–0.96)
Age				
<75	79	1.13 (0.76–1.69)	1.18 (0.59–2.34)	0.96 (0.50–1.85)
≥75	231	0.83 (0.66–1.05)	0.63 (0.42–0.94)	0.62 (0.43–0.89)
Sex				
Female	230	1.03 (0.81–1.30)	0.83 (0.55–1.25)	0.96 (0.67–1.39)
Male	80	0.61 (0.40–0.92)	0.56 (0.29–1.05)	0.32 (0.17–0.59)
Measure of functional mobility and balance				
Get up and go test score = 1 (normal)	132	1.94 (0.67–1.32)	1.06 (0.59–1.92)	0.76 (0.46–1.25)
Get up and go test score = 2, 3 (slight to mild abnormal)	148	0.83 (0.64–1.08)	0.50 (0.31–0.82)	0.56 (0.37–0.85)
Get up and go test score = 4, 5 (moderate to severe)	29	1.09 (0.54–2.22)	1.36 (0.54–3.42)	1.49 (0.44–4.99)
History of falls in past 12 months				
None	107	1.13 (0.76–1.69)	1.26 (0.51–3.14)	0.88 (0.50–1.54)
Falls	203	0.83 (0.66–1.05)	0.65 (0.46–0.94)	0.66 (0.46–0.95)

* Cumulative incidence ratio.
† Negative binomial regression model.

activities. This was a particular focus of the Stepping On program.

The program improved people's efficacy beliefs in coping with functional tasks that have a greater degree of postural challenge and were more community based (MES) but did not make a difference in the basic self-care type activities (MFES). It may be that those recruited were more highly efficacious, but comparison between baseline efficacy scores and other published data[17,26] do not support this theory. There is a known ceiling effect of these scales, because scores are highly skewed to the top score.[38,39] Self-efficacy is situation specific,[22] so the assessment of self-efficacy needs to be behaviorally specific and individualized to a specific functional domain.[40] Unless the assessment reviews what a particular program offers or what characteristics are changed, it simply will not provide a result. It may be more likely that the MES was a more appropriate scale for the people recruited than those with more limited mobility or even housebound.[18,41,42] Safely mobilizing when getting about in the community seemed a concern and was relevant for the majority of people on the Stepping On program.

The difference in the contact time between the intervention group and the control group could have provided a bias, but because the adherence to the falls surveillance system was the same in both groups, bias from this cause seems unlikely to have occurred. Also, Figure 2 shows that any effect derived from attention from the program or the control social visits was not affecting falls during the first few months of the study period, rather the program had the most effect in its latter stages.

Adherence results suggest that it is likely that all components of the program are necessary to show an effect. The home safety and the exercise adherence each compares fa-

Table 4. Effect of Stepping On Program on Self-Efficacy, Physical Activity, Protective Fall Behaviors, Health Status, and General Worries

Outcome Measure*	Control	Program	Mean Difference	95% Confidence Interval of the Difference
	n (Mean Change ± Standard Deviation)			
Mobility efficacy scale	125 (−3.38 ± 17.18)	133 (0.89 ± 16.46)	4.28†	−8.40 to −0.54
Modified falls efficacy scale	125 (−1.10 ± 19.60)	133 (0.63 ± 16.40)	1.74	−6.14 – 2.67
FaB scale	126 (3.07 ± 0.45)‡	134 (3.19 ± 0.35)‡	0.12†	−0.21 to −0.02
Physical activity scale	127 (−13.48 ± 42.25)	132 (−4.40 ± 36.25)	9.08	−18.70 – 0.54
SF-36 physical component	125 (0.68 ± 9.04)	133 (−0.02 ± 8.34)	0.70	−2.94 – 1.88
SF-36 mental health component	125 (−0.52 ± 10.00)	133 (0.01 ± 9.65)	0.53	−2.95 – 1.88
Worry scale	124 (−0.01 ± 0.27)	134 (−0.05 ± 0.73)	0.04	−0.04 – 0.13

* Higher scores indicate positive responses on all measures except the Worry scale.
† $P < .05$.
‡ Mean scores (not mean change scores) because Falls Behavioral (FaB) not available at baseline so only analyzed for comparisons at 14-month follow-up.
SF-36 = 36-item Short Form.

vorably with other studies.[26,43–45] No other studies have been located that offer a comparison for follow through of community safety recommendations. Vision adherence appeared to be promising, with more persons in the program who previously had not had a vision examination in the previous year now initiating one. It may be that Stepping On did not provide sufficient behavioral support for the adoption and maintenance of changes in medication review and usage (e.g., homework to master the use of medicine record cards). Other prescriptive interventions have had mixed results with changing medication usage and maintaining gains.[6,46] Further investigation is needed to better understand how to operationalize targeted behaviors and strategies (e.g., behavioral alternatives to help people sleep better).

The study was not designed to detect an effect in subgroups, and therefore such results should be interpreted with caution. There was an apparent greater effect in men than women. The earlier SAFE study[10] also found a statistically significant effect (odds ratio = 0.53) for men aged 75 and older. The only secondary outcome measures in the current study for which there was a significant interaction effect with sex was the PASE ($P = .04$), with men in the control group showing a marked deterioration and the program group maintaining their physical activity levels. Baseline data were also explored for similarities and differences of characteristics between men and women. One notable difference was that men were much less likely to be living alone. Forty-eight percent (n = 38) of men and 19% (n = 44) of women were living with a spouse ($P < .001$). The support of a spouse may be conducive to the uptake and follow through of fall-prevention strategies taught in the program. Another explanation for men's response to the program may be that, in general, men are less active in health activities and in seeking health knowledge than women.[47] Therefore, they may have had a greater initial readiness, resulting in a much quicker uptake and a more definite response to the range of preventive messages and strategies offered in the program. Perhaps it was the sex mix in the program. A qualitative study[48] found that women influence men's attitude toward exercise, health, and body image more than the men would readily acknowledge. It was found that different recruitment methods yielded different numbers of men (submitted for publication), and it is recommended that specific attention be paid to methods of attracting men, ensuring their inclusion in programs like Stepping On.

Stepping On is a multifactorial, multifaceted community-based program conducted in a learning environment that recognizes that older people have a great amount of experience that they can bring to the process. It is a clinically viable intervention that would be useful for a community team to implement. Key aspects of the program were based on evidence that falls can be prevented by improving lower limb strength and balance, environmental and behavioral home safety, and regular medication reviews, as well as emerging evidence of the importance of regular visual screening and making adaptations for low vision. In addition, community safety was included, which has not previously been articulated as a specific preventive domain or researched as a single mode intervention. The results of this study renew attention toward the idea that cognitive-behavioral learning in a small-group environment can reduce falls. Stepping On offers another successful fall-prevention option.

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Appendix A. Quick Overview of the Program

Stepping On, Reducing Falls and Building Confidence: A Community-Based Prevention Program[13]

Session 1: Introduction, Overview, and Risk Appraisal
Building trust, overview of program aims, sharing fall experiences, choosing what to cover, and introducing the balance and strength exercises.

Session 2: The Exercises and Moving About Safely
Review and practice exercises, explore the barriers and benefits of exercise, moving about safely, such as chairs and steps, learning not to panic after a fall.

Session 3: Home Hazards
Identify hazards in and about the home and problem-solving solutions.

Session 4: Community Safety and Footwear
Generate strategies to get around in the local community and reduce the risk of falling. Learn about the features of a safe shoe and identify clothing hazards.

Session 5: Vision and Falls, Vitamin D, and Hip Protectors
Recognize the influence of vision on risk of falling. Review strategies to reduce risk of falling from visual dysfunction. Identify the importance of vitamin D, sunlight, and calcium to protect from fall injury. Introduce the benefits of hip protectors for those fearful of hip fracture. Identify behavioral sleep alternatives to taking sedatives.

Session 6: Medication Management and Mobility Mastery Experiences
Identify medication risks and falls. Explore strategies to reduce risk of falls from medication side effects or misuse. Review of exercises, with opportunity for questions and upgrading. Review and further explore strategies for getting out in the local community safely. Or, for some participants, practice safe mobility techniques learnt during the program, in a nearby outdoor location. Identify strategies to assist in safely using buses.

Session 7: Review and Plan Ahead
Express personal accomplishments from the past 7 weeks and reflect on the scope of things learned. Review anything requested. Finish any segment not adequately completed. Determine safety strategies to protect against bag snatching. Identify strategies to assist in safely using trains. Time for farewells and closure.

Follow-up home visit: To support follow through of fall-prevention strategies and activities and to assist with home adaptations and modifications if required.

Three-month booster session: Review achievements and how to keep it going.