

Older People's Views of Falls-Prevention Interventions in Six European Countries

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Purpose: Our study identified factors common to a variety of populations and settings that may promote or inhibit uptake and adherence to falls-related interventions. **Design and Methods:** Semi-structured interviews to assess perceived advantages and barriers to taking part in falls-related interventions were carried out in six European countries with 69 people aged 68 to 97 years. The sample was selected to include people with very different experiences of participation or nonparticipation in falls-related interventions, but all individuals were asked about interventions that included strength and balance training. **Results:** Attitudes were similar in all countries and contexts. People were motivated to participate in strength and balance training by a wide range of perceived benefits (interest and enjoyment, improved health, mood, and independence) and not just reduction of falling risk. Participation also was encouraged by a personal invitation from a health practitioner and social approval from family and friends. Barriers to participation included denial of falling risk, the belief that no additional falls-

prevention measures were necessary, practical barriers to attendance at groups (e.g., transport, effort, and cost), and a dislike of group activities. **Implications:** Because many older people reject the idea that they are at risk of falling, the uptake of strength and balance training programs may be promoted more effectively by maximizing and emphasizing their multiple positive benefits for health and well-being. A personal invitation from a health professional to participate is important, and it also may be helpful to provide home-based programs for those who dislike or find it difficult to attend groups.

Key Words: Falls, Patient compliance, Prevention, Refusal to participate

Reducing the incidence of falls among older people is a public health priority. More than one third of people over the age of 65 years fall each year, and the incidence is higher among the very old and frail (Speechley & Tinetti, 1991). However, serious falls also are incurred by fit and active older people (Allander et al., 1998). Falls are consequently the most common cause of accidental injury among older people, which in turn can lead to permanent loss of function and even death (American Geriatrics Society, British Geriatrics Society, & American Academy of Orthopaedic Surgeons Panel on Falls Prevention, 2001; Todd et al., 1995). In addition, falling and fear of falling are linked to elevated levels of psychological distress, restriction of activity and independence, and increased social isolation and use of health and social services (Bruce, Devine & Prince, 2002; Cumming, Salkeld, Thomas, & Szonyi, 2000; Delbaere, Crombez, Vanderstraeten, Willems, & Cambier, 2004; Howland et al., 1998; Murphy, Williams, & Gill, 2002; Yardley & Smith, 2003).

The authors are participants in the ProFaNE thematic network, which is a project in Key Action #6 (The Ageing Population and their Disabilities), part of the European Commission's Fifth Framework, Quality of Life and Management of Living Resources Programme, funded by the European Commission (Grant QLRT-2001-02705). We thank Vonca Schaffers (The Netherlands) for carrying out interviews and transcriptions, Anna Tremmel (Germany) for carrying out interviews, and all the interviewees for their participation.

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There is a growing body of evidence indicating that falls-prevention programs that include muscle strengthening and balance-training exercises can significantly reduce the incidence of falls (American Geriatrics Society et al., 2001; Chang et al., 2004; Gillespie et al., 2001; Skelton & Todd, 2004). However, although the efficacy of these programs has been demonstrated, their effectiveness at reducing the rates of falling in the population depends crucially on rates of uptake and adherence. Although high rates of participation and adherence have been achieved (Barnett, Smith, Lord, Williams, & Baumann, 2003; Tinetti et al., 1994), typically fewer than half of those invited to take part in falls-prevention interventions in the community take up the opportunity (Campbell et al., 1997; Robertson, Devlin, Gardner, & Campbell, 2001; Stevens, Holman, Bennett, & de Klerk, 2001). Uptake can be as low as 10% (Day et al., 2002; Fabacher et al., 1994), and there is then further attrition through dropout and nonadherence. It is therefore important to improve our understanding of how prevention programs can be designed and presented so as to maximize acceptability and participation among older people.

Because exercises form a key component of successful interventions, the literature on factors motivating older people to undertake generic exercise and vigorous physical activity may prove relevant. Research suggests that most older people prefer to exercise at home, but with some professional guidance (Hillsdon, Thorogood, Anstiss, & Morris, 1995; King et al., 2000). Uptake and adherence to interventions to encourage older adults to exercise is associated with a history of being physically active, lower levels of illness, greater self-efficacy (i.e., the belief that one is capable of exercising), and a perception that exercise improves well-being (Martin & Sinden, 2001). Barriers to exercising include pain, illness, and fear of causing physical harm (Martin & Sinden; O'Brien Cousins, 2000; Resnick & Spellbring, 2000; Stead, Wimbush, Eadie, & Teer, 1997), and low levels of social approval and support for exercising and vigorous physical activity in later life (Brawley, Rejeski, & King, 2003; O'Brien Cousins & Janzen, 1998; Stead et al.).

Predictors of uptake and adherence to interventions to reduce falls risk may differ from predictors of generic exercise for several reasons. In falls-prevention interventions very specific physical activities are prescribed, often alongside other lifestyle and medical interventions, for the particular purpose of reducing risk of falling. Reported participation rates vary widely in published clinical trials, and this may be because of the content of the interventions (e.g., hazard reduction vs exercise), the format of the intervention (e.g., group vs home based), how participation is encouraged (e.g., community action vs health professional prescription), or how the population is sampled (e.g., unselected vs high risk). For

example, after having a home-based assessment, 87% of older people followed advice to see their doctors about a medical risk and 71% followed advice to modify their homes to reduce hazards, but only 54% increased their activity as recommended and approximately 33% (one in three people) followed advice to avoid drinking alcohol (Fabacher et al., 1994). In a multifactorial intervention among older people with cognitive impairment, nearly two thirds of the individuals adhered to strength and balance-training exercises, whereas only half of them modified their medications and less than half (39%) reduced home hazards (Shaw et al., 2003). It is therefore difficult to identify what factors may have been responsible for varying rates of uptake and adherence in published interventions, because they differ on a number of potentially relevant dimensions.

Qualitative studies carried out in the context of a variety of falls injury-prevention programs can help to explain the reasons for varying rates of participation in different types of interventions. Frail older people interviewed as hospital inpatients were often unaware that any form of exercise could help prevent falls, and they viewed exercise as too vigorous an activity for them to undertake (Simpson, Darwin, & Marsh, 2003). Conversely, older adults in the community can be hostile to the idea of falls prevention chiefly because they assume that this will involve restricting their activity (Commonwealth Department of Health and Aged Care, 2001; Yardley & Todd, 2005). Home-hazard reduction is sometimes seen as an intrusive interference into personal choices about lifestyle (Clemson, Cusick, & Fozzard, 1999; Simpson et al.), while use of hip protectors is influenced by concerns about comfort, convenience, and appearance (Cameron & Quine, 1994).

Although these studies have provided useful insights into motivations and concerns regarding participation in falls-related interventions, the context-sensitive nature of qualitative research means that it is problematic to generalize their findings beyond the particular setting of each study. Moreover, these studies not only investigated a range of different interventions in different populations, but they also used different interview questions and methods of analysis, which makes it more difficult to synthesize their findings (McInnes & Askie, 2004). Therefore, our aim in the present study was to identify factors promoting or inhibiting uptake and adherence that are common to a wide range of contexts, including different geographical and cultural settings, different community-living populations, and different experiences of falls-related interventions.

To achieve this aim, we used the same semi-structured interview schedule in each of the diverse contexts we sampled, asking all participants about interventions that included strength-and-balance training, because this is a crucial component of successful falls prevention. Our interview questions

Table 1. Participant Characteristics

Country	n	Previous Falls:	Offered Intervention:	Experienced Intervention:	Living Environment		Living Arrangements		Gender (n)		Age (years)	
		n (%)	n (%)	n (%)	Urban	Rural	Alone	With Other(s)	M	F	M	Range
Denmark	12	10 (83)	8 (67)	3 (25)	6	6	9	3	3	9	80.67	77–88
Netherlands	13	4 (31)	13 (100)	4 (31)	13	0	7	6	3	10	79.77	73–88
Germany	10	2 (20)	10 (100)	10 (100)	10	0	7	3	3	7	77.50	68–90
Greece	12	3 (25)	0 (0)	0 (0)	12	0	4	8	2	10	73.33	69–80
Switzerland	14	3 (21)	7 (50)	7 (50)	7	7	10	4	6	8	81.71	76–89
United Kingdom	8	8 (100)	8 (100)	8 (100)	8	0	5	3	2	6	80.88	75–97
Whole sample	69	30 (43)	46 (67)	32 (46)	56	13	42	27	19	50	78.98	68–97

were based on the theory of planned behavior (Ajzen, 1991), a well-validated model that proposes that an individual's intentions and behavior are predicted by beliefs about the positive and negative consequences of carrying out the behavior, perceptions of what others think of the behavior, and perceived difficulties associated with carrying out the behavior. We integrated the data from these diverse settings, using a thematic framework analysis (Ritchie & Spencer, 1994) to first identify all the themes emerging from the whole range of contexts and then determine in which contexts each of the themes occurred. In the data collection and analysis, we focused particularly on gaining insights into reasons for nonparticipation in interventions.

Methods

Design and Procedure

Semistructured interviews lasting generally between 30 and 60 minutes were carried out with community-living older adults in Denmark, Germany, Greece, Switzerland, The Netherlands, and the United Kingdom. Prior approval for carrying out the interviews was granted by the relevant local ethical committee in each country. The interviews were conducted in participants' own languages and were audiotaped, transcribed, and then translated into English so that we could perform an integrated analysis.

To maximize the diversity of the sampled views, we interviewed people who had taken part in a variety of falls-related interventions (including people who had completed the intervention and who had not adhered to the intervention), people who had refused to take part in an intervention, and people who had not been offered a falls-related intervention. We also explicitly recruited people with a wide age range and who lived in different circumstances (e.g., in good and poor health, with and without a history of falling, from an urban and rural home, living alone or with family members, and with different levels of education).

We collaboratively developed the interview schedule and then translated it into the relevant European

languages. The interview schedule was based on the theory of planned behavior (Ajzen, 1991) and covered the following issues: experiences of falls-related interventions; thoughts and feelings about interventions; beliefs about the advantages and disadvantages of interventions; factors that encourage participation in interventions or make participation difficult; and views of other people concerning the interviewee's participation in interventions. People who had previously been offered interventions were asked about their attitudes toward those interventions (see next section for a description of the range of interventions that interviewees discussed). People who had not previously been offered falls-related interventions were asked what their attitudes would be if they were offered a multifactorial intervention. This intervention was described on a card presented to the interviewee that stated the following: "These are the kinds of help that are sometimes offered to older people to reduce the possibility of falling over and being injured: training in exercises that make your legs stronger and improve your balance; medical check-up to make sure you have all the right treatments (e.g., medication, spectacles etc.); advice on how to make your lifestyle and home safer (e.g., how to do activities safely, avoid hazards in the home)."

Participants and Settings

Sixty-nine people (50 women and 19 men) aged between 68 and 97 years responded to oral and written invitations to be interviewed about their attitudes toward falls-related interventions. Table 1 shows the characteristics of participants from each setting. Just under half of the participants (30) had fallen in the past 12 months, two thirds (46) had been offered an intervention, and half (32) had taken part in an intervention.

We recruited the UK interviewees from patients who had been referred to a group-based intervention run by physiotherapists following a fall, and who were then expected to carry out exercises at home following completion of the group-based intervention. The German interviewees also all had experience of a group-based intervention run by

physiotherapists, and they also were mainly referred following a fall. The Swiss participants had a range of experiences with interventions. Some had taken part in interventions including education, ergonomic advice, gymnastics classes for older people, and physiotherapy. Others had never been offered interventions. The Danish participants also had mixed experiences with interventions. Some participants had never been offered interventions, whereas other participants had been offered a group-based falls-prevention intervention run by physiotherapists to which they had been referred following a fall. Three of these participants attended this intervention and five did not. In the Netherlands, interviewees were recruited from a group of people who had been invited to take part in a cognitive behavioral group intervention to reduce fear of falling and associated activity restriction (Zijlstra, van Haastregt, van Eijk, & Kempen, 2005), but they had either declined the offer or ceased to attend after one or two sessions. The Greek participants were a community sample who had never been offered any falls-prevention interventions.

Data Analysis

We employed framework analysis (Ritchie & Spencer, 1994) because this method is suitable for systematically and comprehensively applying an analytic framework to a large quantity of qualitative data. We used Atlas.ti, version 4.1 (Muhr 1997), a qualitative data-analysis software package, to support the data analysis. Two of us developed the framework for the analysis, and we agreed on the indexing, charting, and mapping of the dataset (see the subsequent information). All of us discussed and approved the framework, findings, and interpretation of the analysis, and we agreed that the findings reflected the data we had collected from our subsamples.

There were six key stages in our analysis: familiarization, identification of the thematic framework, indexing, charting, mapping, and interpretation. Familiarization involves reading and rereading the interview transcripts to achieve immersion in the data and identify themes and ideas. We then developed a thematic framework by reviewing the notes developed during the familiarization process and identifying key themes and subthemes to create a hierarchical framework. The theory of planned behavior did not offer a reliable framework for coding the data because of the difficulty of reliably distinguishing between perceived negative aspects of interventions and perceived barriers to participating in interventions. Instead, we used four key a priori categories to structure emerging themes into factors promoting uptake and adherence, and barriers to uptake and adherence. (We did not include data from the Netherlands and Greece in the analyses of adherence as the interviewees from these settings

had not had sufficient experience of participation in interventions.) We then systematically applied the framework to all the data (known as indexing), concurrently modifying and refining the framework to maximize the grounding of the framework in the data. Charting involved indicating how many interviewees had made statements relating to each theme, and in which settings each theme had been identified. This procedure allowed us to provide a broad indication of the importance of themes in the whole sample and to confirm whether themes occurred in a wide range of settings. The results of the process of indexing and charting are summarized in four tables (see Tables 2 to 5) that list all the themes and subthemes identified within each of the four main coding categories.

The final processes of mapping and interpretation involved exploring patterns and key issues by making comparisons and developing explanations that were grounded in the data. At this point, we paid particular attention to examining any qualitative differences between samples from different settings, and between participants who did or did not wish to take part in interventions. However, we had decided prior to data collection that we could not undertake a multi-dimensional analysis (Ritchie & Spencer, 1994), which involves comprehensively mapping individuals or attitudes onto typologies on the basis of two or more relevant factors (e.g., country, intervention type, and participation status). We made this decision because it was not possible to interview a sufficient number of participants corresponding to each combination of the many factors that might influence uptake and adherence to permit reliable estimation within subgroups of the proportion of interviewees mentioning each theme (see the introduction for a discussion of potentially relevant factors).

Results

Factors Promoting Uptake and Adherence

The themes linked to uptake of a falls-related intervention could be categorized into anticipated benefits of taking part, predisposing factors (such as personal characteristics and previous experiences), and factors that precipitated the final decision. It is evident from Table 2 that very similar themes tended to recur in all the settings sampled. The exception appears to be the United Kingdom, but this is simply because UK participants talked mainly about progressing from group-based to home-based interventions. Consequently, although the factors influencing their decisions to carry out home-based exercise were very similar to the reasons given for taking up interventions in the other settings, we coded their responses as most relevant to *adherence* to the transition from group-based to home-based exercise, rather than to *uptake* of an entirely new intervention.

The positive benefits from taking part in an

Table 2. Factors Promoting Uptake of Interventions: List of Themes, Number of Statements Made Relevant to Each Theme, and Settings in Which the Theme Was Mentioned

Theme	Total No. of Statements	Statement Relevant to Theme Occurred in Subsample From:					
		United Kingdom (n = 8)	Germany (n = 10)	Switzerland (n = 14)	Denmark (n = 12)	Netherlands (n = 13)	Greece (n = 12)
Anticipated benefits							
General (could or would do me good; worth trying)	20	✓	✓	✓	✓	✓	✓
Physical (strengthening muscles; improving balance)	20		✓	✓	✓		✓
Knowledge (learning new things; health education)	16		✓	✓	✓		✓
Functional (walking ability)	13		✓	✓	✓	✓	
Social group (chance to meet and talk with other people)	13		✓	✓	✓	✓	✓
Physical and psychological (well-being; holistic benefits)	9		✓	✓	✓	✓	✓
Hazard reduction (avoiding accidents; making home safer)	9			✓	✓		✓
Psychological (confidence, reassurance; mood lifting)	8		✓		✓		✓
Independence (maintaining current ability to live in community)	5		✓				✓
Predispositions							
Own experiences (of exercising as child or adult; previous rehabilitation)	19	✓	✓	✓	✓	✓	✓
Motivations (like and take advice)	16		✓	✓	✓	✓	✓
Curiosity (about interventions, learning new things in general)	12		✓	✓	✓	✓	✓
Others' experiences (of exercising, classes, other interventions)	7		✓	✓	✓	✓	✓
Precipitating factors:							
Intervention related							
Invitation (being invited to intervention, e.g., by doctor, physiotherapist)	32	✓	✓	✓	✓	✓	
Explanation (being told details about what the intervention involves)	4	✓	✓				✓
Intervention properties (well managed, tailored to individual)	4	✓			✓		✓
Precipitating factors:							
Perceived need							
Physical (recognizing physical problems such as walking difficulties, dizziness)	29	✓	✓	✓	✓	✓	✓
Falls related (recognizing risk of falling, activity restrictions due to falling risk)	16	✓	✓	✓	✓	✓	✓
Precipitating factors: Social							
Family or friends approving of or encouraging participation	28		✓	✓	✓	✓	✓
Precipitating factors: Practical							
Transport offer, having time, free intervention	18		✓	✓	✓		✓

Notes: The countries are arranged in columns from left to right in decreasing order of the percentage of interviewees who had experienced falls-prevention interventions. Check marks indicate that the particular theme occurred.

intervention that motivated interviewees were wide ranging. Rather than focusing solely on reducing falls risk, participants hoped for improvements in general health, strength, and mobility that were implicitly, or sometimes explicitly, linked to maintain-

ing independence. For example, a German woman, aged 85, gave this explanation: "I was willing to do anything that would enable me to carry on living as I was at the time—independently—being able to do my shopping, looking after myself, that was a huge

Table 3. Factors Promoting Adherence to Interventions: List of Themes, Number of Statements Made Relevant to Each Theme, and Settings in Which the Theme Was Mentioned

Theme	Total No. Statements	Statement Relevant to Theme Occurred in Subsample From:			
		United Kingdom (<i>n</i> = 8)	Germany (<i>n</i> = 10)	Switzerland (<i>n</i> = 14)	Denmark (<i>n</i> = 12)
Positive effects					
Physical (flexibility, strengthening, balance, fitness)	25	✓	✓	✓	✓
Enjoyment (enjoying intervention, having fun)	22	✓	✓	✓	✓
Social group (talking and being with others; companionship)	21	✓	✓	✓	✓
Nonspecific (“good” intervention; feeling “better”)	20	✓	✓	✓	✓
Functional (walking ability, movement, climbing stairs, getting out of chairs or bed)	19	✓	✓	✓	✓
Psychological (confidence, alert, awareness, improved mood, pride)	12	✓	✓	✓	✓
Physical and psychological (well-being, physical and psychological effects talked about together)	12	✓	✓	✓	✓
Falls related (learning to prevent falls, to get up after falls, having not fallen since an intervention)	12	✓		✓	✓
Independence (maintaining abilities and other activities)	5	✓	✓		
Supporting factors: Intervention					
Leaders (know what they are doing; are supportive, helpful, friendly)	15	✓	✓	✓	✓
Properties (regular sessions, personal supervision, factually correct, challenging, suitable for age and abilities)	15	✓	✓	✓	✓
Supporting factors: Personal					
Overcoming difficulties (buying equipment, modifying exercises, finding transport, ignoring pain)	18	✓	✓	✓	✓
Ongoing need (to strengthen further, prevent health problems, maintain current functioning)	10	✓	✓	✓	✓
Motivated (wanting to continue intervention, home practice)	6	✓	✓		✓
Supporting factors: Practical					
General (free or convenient transport, free or cheap intervention, solving practical problems)	9	✓	✓	✓	✓
Supporting factors: Social					
Support from family and friends (encouragement, practical support from family or friends)	21	✓	✓	✓	✓
Social comparison (comparing one’s abilities or progress with that of others; seeing others progress)	10	✓	✓	✓	✓
Support from group members (encouragement, practical support from other intervention participants)	7	✓	✓	✓	✓
Support from doctor (encouragement, practical support from doctor)	7		✓	✓	

Notes: The countries are arranged in columns from left to right in decreasing order of the percentage of interviewees who had experienced falls–prevention interventions. Check marks indicate that the particular theme occurred.

Table 4. Barriers to Uptake of Interventions: List of Themes, Number of Statements Made Relevant to Each Theme, and Settings in Which the Theme Was Mentioned

Theme	Total No. of Statements	Statements Relevant to Theme Occurred in Subsample From:					
		United Kingdom (<i>n</i> = 8)	Germany (<i>n</i> = 10)	Switzerland (<i>n</i> = 14)	Denmark (<i>n</i> = 12)	Netherlands (<i>n</i> = 13)	Greece (<i>n</i> = 12)
Low motivation							
No need (already doing activities; no physical or falls-related need recognized)	40	✓	✓	✓	✓	✓	✓
Take time or other priorities (have other things would prefer to spend time doing)	21	✓	✓	✓	✓	✓	✓
Others' attitudes (negative attitudes to intervention by other people, e.g., doctors)	15	✓	✓	✓	✓	✓	✓
Not interested (in aspect of or whole intervention or idea of interventions)	13		✓	✓	✓	✓	✓
Low anticipated efficacy (intervention cannot prevent falls)	11	✓		✓	✓	✓	✓
Intervention seen as an intrusion into private matters	4				✓	✓	
Practical							
Transport, financial cost, timing, etc.	33	✓	✓	✓	✓	✓	✓
Concerns							
Risk of injury or harm during intervention (often due to health problems)	16	✓	✓	✓	✓	✓	✓
Unknown activities (anxiety about trying something new)	12		✓		✓	✓	
Age identity (would make one feel Old; intervention suitable for older people)	10		✓	✓	✓	✓	✓
Social group (embarrassment; not liking other participants or instructor)	7	✓	✓	✓	✓		✓
Ability to take part (low energy; physical difficulty of intervention)	6	✓	✓	✓		✓	✓
Independence (reluctance to accept help)	5		✓	✓		✓	✓
Commitment (to regular attendance, being obliged to do something)	5			✓	✓	✓	

Notes: The countries are arranged in columns from left to right in decreasing order of the percentage of interviewees who had experienced falls prevention interventions. Check marks indicate that the particular theme occurred.

motivation.” Psychosocial benefits also were frequently expected, such as learning new things, meeting people, and improving confidence, appearance, and mood.

The principal predisposing factor mentioned was personal lifetime experience of a variety of forms of exercise, including at school, in adulthood, and recent experience of other types of rehabilitation. The most important precipitating factor was a personal invitation to take part in an intervention, especially from a health professional. Other predisposing factors were perceived vulnerability or need, social approval and encouragement, and convenience. Risk of falling also was often reported as a factor precipitating uptake, although this was partly because many interviewees had been invited to take part in an intervention as a result of their high risk of falling.

The experience of a wide range of positive benefits from the intervention appeared to be an important motivation for adherence across all settings (see Table 3). Reduction in falls risk was less often

mentioned than enhancement of physical capabilities and functioning and enjoyment of the activities. Several forms of social support also were widely reported as helpful. Family members could provide practical help (e.g., with transport or by supervising the exercises) and encourage participants by appreciating their achievements. Participants in groups or classes benefited from support from the group leaders and peers. A 76-year-old British woman who had fallen repeatedly in the past year gave this explanation:

You can try something because you know that there is somebody there watching, or to help you, or to help you up or whatever . . . they [classes] are good for seeing what other people have to cope with as well and how they can manage, you see somebody else struggling to do something else, or to do it a different way or whatever, it's quite a complex thing I think. And they [the supervisors] never look away; they never take their eyes off you.

Table 5. Barriers to Adherence to Interventions: List of Themes, Number of Statements Made Relevant to Each Theme, and Settings in Which the Theme Was Mentioned

Theme	Total No. of Statements	Statements Relevant to Theme Occurred in Subsample From:				
		United Kingdom (n = 8)	Germany (n = 10)	Switzerland (n = 14)	Denmark (n = 12)	Netherlands (n = 13)
Personal barriers						
Health (ongoing or new health problems, e.g., joint problems)	15	✓	✓	✓	✓	✓
Low motivation (lack of will power, motivation; intervention not suitable or necessary)	8	✓	✓	✓	✓	✓
Other priorities (housework, appointments, holidays, caring for relatives)	7	✓	✓		✓	✓
Memory (for advice, remembering to do home-based exercises)	5	✓		✓		✓
Others' attitudes (others, such as medical professionals, advising against intervention)	2			✓	✓	
Psychologists (psychologists being involved in intervention putting people off)	1		✓			
Practical barriers						
Transport, financial cost, timing, etc.	14		✓	✓	✓	✓
Negative effects						
No positive outcomes (intervention has no beneficial effects, e.g., physically)	10	✓	✓	✓	✓	✓
Social group (not getting along with other intervention participants)	10	✓	✓	✓	✓	✓
Physically unpleasant (e.g., tiring or painful)	7	✓		✓	✓	✓
Age identity (feeling intervention suitable for older people; makes one feel old)	5		✓	✓	✓	✓
Not enjoyable (not enjoying taking part)	5			✓	✓	

Notes: The countries are arranged in columns from left to right in decreasing order of the percentage of interviewees who had experienced falls prevention interventions. Check marks indicate that the particular theme occurred.

Barriers to Uptake and Adherence

A majority of interviewees across all the settings actually denied that they needed a falls-related intervention (see Table 4), despite indications from their interviews of the presence of risk factors such as poor mobility, advanced age, and previous falls. Although low perceived risk was given as a reason for refusing participation in an intervention, some who agreed to take up an intervention also denied that they were at risk. Many stated that intervention was needed only for people at higher risk than themselves, whereas others believed that they were already taking sufficient preventive action (although few were aware of or taking all the recommended preventive measures). For example, a very physically active Danish woman, aged 82, admitted that there was a dangerous slippery rug in her home, but she still protested:

How could it [her home] be safer? I clean the windows myself and take care of the apartment. I have been offered help but I don't feel I want to have any yet. Perhaps the time may come, but while

I feel I can take care of myself there are other people that need it more than me.

Some people felt that offering advice to adults who saw themselves as experienced and competent was potentially insulting or upsetting. A Greek man, aged 71, made this suggestion:

You should be very careful about the way you would approach old men and tell them that they might need to participate in this. You wouldn't like to make someone feel depressed. Not everybody accepts his age and his state. If you told a 30-year-old man "don't climb the ladder like this because you may fall," he may accept it better than a 70-year-old man, who would say "I have climbed this ladder for 50 years, don't tell me that I will fall."

Reluctance to be viewed as old and disabled also could negatively influence participation in groups or classes. For example, an 83-year-old Swiss woman who had had several fractures from falling nevertheless made this complaint:

It [the exercise class] was really boring. Let's say, it was—I shouldn't say this—it was too old for me! I kept telling myself "Maybe in five or six years it would be perfect" but at the time I was 80 years old, I felt that I was still too fit to be in that group . . . I imagined that that kind of stuff was for people in old folks' homes.

Although some people found the classes too easy, others found them too physically or mentally challenging, often because of additional health problems such as hearing loss, incontinence, or poor memory. A Dutch woman, aged 78, who had been hospitalized following a fall and had breathing and memory problems, found the group situation problematic:

At the course I thought, "Do I really have to go through with this? I can hardly get air and can hardly talk" and that wasn't very nice for me because the others are all looking at you . . . When I looked around and saw those people, it made me feel sicker.

Practical barriers to participation (e.g., time, cost, and lack of transport) were described by participants in all the settings sampled. For older people with limited physical and financial resources, traveling to attend an exercise class could require a substantial commitment of time and effort. Poor health (e.g., heart and back problems) also could pose an obstacle to an individual's uptake and adherence (see Table 5), sometimes directly preventing participation but sometimes indirectly preventing it through a person's unfounded anxiety about the consequences of exercising.

Discussion

The views expressed by older people appeared remarkably similar across the different contexts and countries sampled. This permits us to draw conclusions and make practical recommendations that may have relevance to a wide range of populations and settings.

The main reason given for nonparticipation was low perceived need, linked to a denial of risk of falling. Therefore, it might seem logical to attempt to increase the awareness of falling risk among older people in order to increase their participation. However, research into responses to falls-prevention messages suggests that the risk of falling is seen as obvious, whereas the denial of *personal* risk expresses a determination to maintain an active, competent, and independent lifestyle and identity (Yardley, Donovan-Hall, Francis, & Todd, 2006). Consequently, a more effective strategy may be to try to convince older people that this goal is entirely compatible with undertaking falls-prevention activities. This could be achieved by emphasizing the

multiple immediate benefits of strength-and-balance training, which were widely reported as reasons for continued adherence, such as a general improvement in mobility, health, confidence, and mood, as well as interest and enjoyment. This approach would be consistent with the findings of research into older people's attitudes to general exercise, which also has revealed a dislike of health promotion messages targeted specifically toward older people, and indicates that older people are motivated to exercise principally by psychosocial rather than health benefits (Finch, 1997; Ory, Hoffman, Hawkins, Sanner, & Mockenhaupt, 2003; Stead et al., 1997). Even changing the name of falls-related interventions might be helpful; in a recent survey in Australia (Snodgrass, Rivett, & Mackenzie, 2005), older people proposed that the term *falls prevention* should be replaced by a more positive message such as the *Better Health Club*.

As well as publicizing the multiple benefits of strength-and-balance training, it may be possible to design interventions to maximize these additional benefits. Group training can provide a safe environment for enjoyable and sociable activities. However, it is clear from this study that group-based training is unsuitable for many older people, who may dislike participating in a group or may find it difficult to attend as a result of practical barriers relating to time, effort, cost, and transport. It may be helpful, therefore, to provide support for a variety of different, enjoyable interventions, both group based and home based, to match individual differences in capabilities, lifestyles, and preferences.

Advice and encouragement from health practitioners (and, to a lesser extent, family and peers) had a very strong influence on attitudes toward participation. Currently, referral to interventions is often reserved for high-risk individuals, frequently after they have already had a serious fall, and this strategy can result in high uptake rates and good outcomes. However, advice to those at high risk sometimes emphasizes the restriction of activity, and this can increase fear of falling and undermine independence (Gillespie, 2004; Ward-Griffin et al., 2004). Instead, it may be beneficial to encourage *all* older people to undertake strength-and-balance training, because our findings indicate that previous experience of carrying out exercise is a factor promoting participation in falls-prevention interventions, whereas very old and frail individuals may have difficulty adopting these activities for the first time. There is preliminary evidence that population-based approaches that encourage all older people to engage in falls-prevention activities (including hazard reduction and appropriate physical activity) can be effective in reducing falls-related injuries (McClure et al., 2005).

In summary, our findings suggest that, to promote uptake and adherence to an intervention, it may be helpful to involve health professionals in referral

to the intervention; maximize and emphasize its potential to contribute to general health, mobility, independence, confidence, and enjoyment; and offer a choice from a range of individual and group-based activities. Although the involvement of health professionals in referrals is already common, it is not yet routine to offer a choice of individual or group-based activity, and most interventions are presented explicitly as falls-prevention programs rather than interventions with the potential to offer a much wider range of immediate benefits. However, further research is required before definitive recommendations can be made. The design of this study sought to maximize the diversity rather than the representativeness of the sample, in order to elicit a wide range of views. Now that common attitudes to interventions have been identified in this way, population surveys in representative samples are needed to establish their prevalence. Quantitative research also is needed to test the associations between attitudes, participant characteristics, and participation rates in the context of different interventions. Quantitative research would permit reliable differentiation of the effects of the different elements of the theory of planned behavior, which did not prove possible in this qualitative analysis, and it could be used to determine which factors are more relevant to uptake and which to adherence. Finally, although qualitative research can describe the reasons people give for participation or non-participation in interventions, controlled trials are required in order to determine whether uptake and adherence can be improved by addressing these reported barriers and facilitators.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Allander, E., Gullberg, B., Johnell, O., Kanis, J. A., Ranstam, J., & Elffors, L. (the MEDIS study group). (1998). Circumstances around the fall in a multinational hip fracture risk study: A diverse pattern for prevention. *Accident Analysis and Prevention*, 30, 607–616.
- American Geriatrics Society, British Geriatrics Society, & American Academy of Orthopaedic Surgeons Panel on Falls Prevention. (2001). Guidelines for the prevention of falls in older persons. *Journal of the American Geriatrics Society*, 49, 664–672.
- Barnett, A., Smith, B., Lord, S. R., Williams, M., & Baumand, A. (2003). Community-based group exercise improves balance and reduces falls in at-risk older people: A randomized controlled trial. *Age and Ageing*, 32, 407–414.
- Brawley, L. R., Rejeski, J., & King, A. C. (2003). Promoting physical activity for older adults: The challenges for changing behavior. *American Journal of Preventive Medicine*, 25, 172–183.
- Bruce, D. G., Devine, A., & Prince, R. L. (2002). Recreational physical activity levels in healthy older women: The importance of fear of falling. *Journal of the American Geriatrics Society*, 50, 84–89.
- Cameron, I. D., & Quine, S. (1994). External hip protectors: Likely non-compliance among high risk elderly people living in the community. *Archives of Gerontology and Geriatrics*, 19, 273–281.
- Campbell, A. J., Robertson, M. C., Gardner, M. G., Norton, R. N., Tilyard, M. W., & Buchner, D. M. (1997). Randomized controlled trial of a general practice programme of home based exercise to prevent falls in elderly women. *British Medical Journal*, 315, 1065–1069.
- Chang, J. T., Morton, S. C., Rubenstein, L. Z., Mojica, W. A., Maglione, M., Suttrop, M. J., et al. (2004). Interventions for the prevention of falls in older adults: Systematic review and meta-analysis of randomized controlled trials. *British Medical Journal*, 328, 680–683.
- Clemson, L., Cusick, A., & Fozzard, C. (1999). Managing risk and exerting control: Determining follow through with falls prevention. *Disability and Rehabilitation*, 21, 531–541.
- Commonwealth Department of Health and Aged Care. (2001). *National Falls Prevention for Older People Initiative "Step out with confidence."* Canberra, Australian Capital Territory, Australia: Author.
- Cumming, R. G., Salkeld, G., Thomas, M., & Szonyi, G. (2000). Prospective study of the impact of fear of falling on activities of daily living, SF-36 scores, and nursing home admission. *Journal of Gerontology: Medical Sciences*, 55A, M299–M305.
- Day, L., Fildes, B., Gordon, I., Fitzharris, M., Flamer, H., & Lord, S. (2002). Randomised factorial trial of falls prevention among older people living in their own homes. *British Medical Journal*, 325, 128–131.
- Delbaere, K., Crombez, G., Vanderstraeten, G., Willems, T., & Cambier, D. (2004). Fear-related avoidance of activities, falls, and physical frailty. A prospective community-based cohort study. *Age and Ageing*, 33, 368–373.
- Fabacher, D., Josephson, K., Pietruszka, F., Linderborn, K., Morley, J. E., & Rubenstein, L. Z. (1994). An in-home preventive assessment program for independent older adults: A randomized controlled trial. *Journal of the American Geriatrics Society*, 42, 630–638.
- Finch, H. (1997). *Physical activity at our age*. London: Health Education Authority.
- Gillespie, L. (2004). Preventing falls in elderly people. *British Medical Journal*, 328, 654–654.
- Gillespie, L. D., Gillespie, W. J., Robertson, M. C., Lamb, S. E., Cumming, R. G., & Rowe, B. H. (2001). Interventions for preventing falls in elderly people (Cochrane Review). London: Wiley. Retrieved June 6, 2005 from The Cochrane Library database, Issue 3.
- Hillsdon, M., Thorogood, M., Anstiss, T., & Morris, J. (1995). Randomised controlled trials of physical activity promotion in free living populations: A review. *Journal of Epidemiology and Community Health*, 49, 448–453.
- Howland, J., Lachman, M. E., Peterson, E. W., Cote, J., Kasten, L., & Jette, A. (1998). Covariates of fear of falling and associated activity curtailment. *The Gerontologist*, 38, 549–555.
- King, A. B., Castro, C., Wilcox, S., Eyster, A. A., Sallis, J. F., & Brownson, R. C. (2000). Personal and environmental factors associated with physical inactivity among different racial-ethnic groups of U.S. middle-aged and older-aged women. *Health Psychology*, 19, 354–364.
- Martin, K. A., & Sinden, A. R. (2001). Who will stay and who will go? A review of older adults' adherence to randomized controlled trials of exercise. *Journal of Aging and Physical Activity*, 9, 91–114.
- McClure, R., Turner, C., Peel, N., Spinks, A., Eakin, E., & Hughes, K. (2005). Population-based interventions for the prevention of fall-related injuries in older people (Cochrane Review). London: Wiley. Retrieved March 1, 2006, The Cochrane Library, Issue 3.
- McInnes, E., & Askie, L. (2004). Evidence review on older people's views and experiences of falls prevention strategies. *Worldviews on Evidence-Based Nursing*, 1, 20–37.
- Muhr, T. (1997). Scientific Software Development's Atlas.ti (Version 4.1) [Computer software]. London: Scolaris Sage.
- Murphy, S. L., Williams, C. S., & Gill, T. M. (2002). Characteristics associated with fear of falling and activity restriction in community-living older persons. *Journal of the American Geriatrics Society*, 50, 516–520.
- O'Brien Cousins, S. (2000). "My heart couldn't take it": Older women's beliefs about exercise benefits and risks. *Journal of Gerontology: Psychological Sciences*, 55B, P283–P294.
- O'Brien Cousins, S., & Janzen, W. (1998). Older adult beliefs about exercise. In S. O'Brien Cousins (Ed.), *Exercise, aging, and health: Overcoming barriers to an active old age* (pp. 71–96). Washington, DC: Taylor & Francis.
- Ory, M., Hoffman, M. K., Hawkins, M., Sanner, B., & Mockenhaupt, R. (2003). Challenging aging stereotypes: Strategies for creating a more active society. *American Journal of Preventive Medicine*, 25, 164–171.
- Resnick, B., & Spellbring, A. M. (2000). Understanding what motivates older adults to exercise. *Journal of Gerontological Nursing*, 26, 34–42.
- Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman & R. G. Burgess (Eds.), *Analyzing qualitative data* (pp. 173–194). London: Routledge.
- Robertson, M. C., Devlin, N., Gardner, M. M., & Campbell, A. J. (2001). Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls. 1: Randomised controlled trial. *British Medical Journal*, 322, 697–701.
- Shaw, F. E., Bond, J., Richardson, D. A., Dawson, P., Steen, I. N., McKeith, I. G., et al. (2003). Multifactorial intervention after a fall in older people with cognitive impairment and dementia presenting to the accident and emergency department: A randomised controlled trial. *British Medical Journal*, 326, 73–78.
- Simpson, J., Darwin, C., & Marsh, N. (2003). What are older people

- prepared to do to avoid falling? A qualitative study in London. *British Journal of Community Nursing*, 8, 133–139.
- Skelton, D., & Todd, C. (2004). *What are the main risk factors for falls amongst older people and what are the most effective interventions to prevent these falls? How should interventions to prevent falls be implemented?* Health Evidence Network Synthesis. Copenhagen, Denmark: World Health Organisation.
- Snodgrass, S. J., Rivett, D. A., & Mackenzie, L. A. (2005). Perceptions of older people about falls injury prevention and physical activity. *Australasian Journal on Ageing*, 24, 114–118.
- Speechley, M., & Tinetti, M. (1991). Falls and injuries in frail and vigorous elderly persons. *Journal of the American Geriatrics Society*, 39, 46–52.
- Stead, M., Wimbush, E., Eadie, D., & Teer, P. (1997). A qualitative study of older people's perceptions of ageing and exercise: The implications for health promotion. *Health Education Journal*, 56, 3–16.
- Stevens, M., Holman, C. D. J., Bennett, N., & de Klerk, N. (2001). Preventing falls in older people: Outcome evaluation of a randomized controlled trial. *Journal of the American Geriatrics Society*, 49, 1448–1455.
- Tinetti, M. E., Baker, D. I., McAvay, G., Claus, E. B., Garrett, P., Gottschalk, M., et al. (1994). A multifactorial intervention to reduce the risk of falling among elderly people living in the community. *New England Journal of Medicine*, 331, 821–827.
- Todd, C. J., Freeman, C. J., Camilleriferrante, C., Palmer, C. R., Hyder, A., Laxton, C. E., et al. (1995). Differences in mortality after fracture of hip: The East Anglian audit. *British Medical Journal*, 310, 904–908.
- Ward-Griffin, C., Hobson, S., Melles, P., Klooseck, M., Vandervoort, A., & Crilly, R. (2004). Falls and fear of falling among community-dwelling seniors: The dynamic tension between exercising precaution and striving for independence. *Canadian Journal on Aging*, 23, 307–318.
- Yardley, L., & Smith, H. (2003). A prospective study of the relationship between feared consequences of falling and avoidance of activity in community-living older people. *The Gerontologist*, 42, 17–23.
- Yardley, L., & Todd, C. (2005). *Encouraging positive attitudes to falls in later life*. London: Help the Aged.
- Yardley, L., Donovan-Hall, M., Francis, K., & Todd, C. (2006). Older people's views of advice about falls prevention: A qualitative study. *Health Education Research*, 21, 508–517.
- Zijlstra, G. A. R., van Haastregt, J. C. M., van Eijk, J. Th. M., & Kempen, G. I. J. M. (2005). Evaluating an intervention to reduce fear of falling and associated activity restriction in elderly persons: Design of a randomized controlled trial. *BMC Public Health*, 5, 26.

Received November 17, 2005

Accepted May 2, 2006

Decision Editor: Linda S. Noelker, PhD

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