



Recommendations for promoting the engagement of older people in activities to prevent falls

L Yardley, N Beyer, K Hauer, K McKee, C Ballinger and C Todd

Qual. Saf. Health Care 2007;16;230-234
doi:10.1136/qshc.2006.019802

Updated information and services can be found at:
<http://qshc.bmj.com/cgi/content/full/16/3/230>

These include:

References

This article cites 22 articles, 7 of which can be accessed free at:
<http://qshc.bmj.com/cgi/content/full/16/3/230#BIBL>

Rapid responses

You can respond to this article at:
<http://qshc.bmj.com/cgi/eletter-submit/16/3/230>

Email alerting service

Receive free email alerts when new articles cite this article - sign up in the box at the top right corner of the article

Notes

To order reprints of this article go to:
<http://www.bmjournals.com/cgi/reprintform>

To subscribe to *Quality and Safety in Health Care* go to:
<http://www.bmjournals.com/subscriptions/>

DEVELOPING RESEARCH AND PRACTICE

Recommendations for promoting the engagement of older people in activities to prevent falls

L Yardley, N Beyer, K Hauer, K McKee, C Ballinger, C Todd

Qual Saf Health Care 2007;16:230-234. doi: 10.1136/qshc.2006.019802

Objective: To develop recommendations for promoting uptake of and adherence to falls-prevention interventions among older people.

Design: The recommendations were initially developed from literature review, clinical experience of the core group members, and substantial qualitative and quantitative studies of older people's views. They were refined through a consultation process with members of the falls-prevention community, drawing on Delphi survey and nominal group techniques. Transparency was enhanced by recording and reporting aspects of the iterative consultation process such as the degree of consensus and critical comments on drafts of the recommendations.

Setting: The recommendations were developed and refined at three meetings of the core group, and through internet-based consultation and two meetings involving members of the wider falls-prevention community.

Participants: The authors developed the recommendations incorporating the feedback from the researchers and practitioners responding to a broad-based internet consultation and consulted in the meetings.

Results: A high degree of consensus was achieved. Recommendations addressed the need for public education, ensuring that interventions were compatible with a positive identity, tailoring interventions to the specific situation and values of the individual, and using validated methods to maintain longer-term adherence.

Conclusion: These recommendations represent a consensus based on current knowledge and evidence, but the evidence base from which these recommendations were developed was limited, and not always specific to prevention of falls. To increase the effectiveness of falls-prevention interventions, further research is needed to identify the features of falls-prevention programmes that will encourage older people's engagement in them.

See end of article for authors' affiliations

Correspondence to:
Professor L Yardley, School of Psychology, University of Southampton, Southampton, Hants SO17 1BJ, UK;
l.yardley@soton.ac.uk

Accepted 26 March 2007

Interventions with proven efficacy will be effective in practice only if patients adhere to them,¹ but clinical guidelines rarely make evidence-based recommendations about how best to involve patients in their implementation. This paper presents recommendations for promoting the engagement of older people in the prevention of falls.

Falls are the most common cause of accidental injury in older people, and frequently result in disability and handicap, emotional distress, and increased use of health and social services.²⁻³ Clinical trials have shown that falls-prevention programmes can reduce the incidence of falls.²⁻⁵ However, the effectiveness of these programmes is potentially compromised by the reluctance of many older people to take part, which can lead to low uptake rates and significant levels of dropout and non-adherence.⁶ The Prevention of Falls Network Europe (ProFaNE; <http://www.profane.eu.org>), therefore, undertook developing guidelines for maximising the acceptability of falls-prevention interventions among older people as its key objective, in order to increase their participation levels. However, the evidence base for these guidelines has proved to be weak. There is little research on adherence in the field of geriatric rehabilitation.⁷ Published falls-prevention interventions have used a variety of methods to promote adherence, but their effectiveness is difficult to determine, because they have not been tested using a randomised controlled design. Comparisons between intervention studies are problematic, because variations in the methods used to promote adherence in different studies are confounded by differences in the sample, setting and intervention, which can also affect adherence. Moreover, descriptions of interventions do not usually provide sufficient detail to permit evaluation of how their various components may have affected adherence.

A new method for developing guidelines has recently been proposed,⁸ which combines the Delphi survey method of eliciting anonymous opinions from people who are geographically dispersed with the opportunity for debate provided by the nominal group technique. This new approach was explicitly intended for use in situations where the evidence base is weak, but there is a need to make recommendations for improvements in clinical practice and research. In this situation, the evidence base must be supplemented by a consensus based on the subjective views of those working in the field, making this process explicit and transparent by reporting aspects of the consultation process such as the degree of consensus and reasons for disagreement. We utilised this approach for the development of our recommendations, modifying the method to fit the requirements of our particular context. The aim of this paper is to describe the process and outcomes of developing recommendations for promoting the engagement of older people in falls prevention.

METHODS

Generation of recommendations

The development of the recommendations commenced with a meeting of nine members and associate members of ProFaNE Workpackage 4 (a workpackage of researchers and clinicians addressing the psychological aspects of falls prevention) in September 2005. This group (which included all the authors) identified seven topics that seemed relevant to engaging older people in falls-prevention programmes.

To provide an evidence base to inform our recommendations, we first carried out two large qualitative studies and a survey of older people's views on falls prevention.⁶⁻⁹⁻¹⁰ These studies elicited the views of a wide range of older people in different

circumstances, and examined which factors were most closely associated with intentions to undertake strength and balance training to prevent falls. We were also able to draw on a recently published narrative systematic review of older people's views of falls prevention.¹¹ Because of the limited evidence base relating specifically to falls-prevention interventions, we decided to also draw on a wider literature, including basic psychosocial theory and research into participation in other preventive healthcare activities.

One or more individuals took responsibility for developing a draft recommendation relevant to each topic, and for compiling an evidence base for each recommendation. These were then developed and revised in discussion with the whole group.

Consultation process

This process involved the further development and refinement of the recommendations via iterative discussions involving the core group (the co-authors), and a series of wider consultations both within and outside the membership of ProFaNE. Table 1 summarises the process, with further details provided below. A description of the key changes to the recommendations made during this process is given in the Results section.

1. The initial meeting, during which seven key topics were identified and the core group established, formed part of a larger meeting of all workpackages in the ProFaNE network. The key topics were therefore presented to the 49 people working in the field of falls prevention who attended the ProFaNE meeting, to obtain rapid feedback regarding the proposed topics.
2. Seven outline recommendations were subsequently developed and posted on the Workpackage 4 discussion board on the ProFaNE website, for refinement through discussion with all members of Workpackage 4.
3. Once the draft outline recommendations had been agreed within Workpackage 4, we carried out a formal website consultation, to permit anonymous rating and commentary on our proposed recommendations from a wide range of professionals working in falls prevention (including medicine, nursing, physiotherapy, occupational therapy, psychology, management and so on). For 6 weeks, the recommendations were presented on the ProFaNE website to 171 researchers and clinicians working in the field of falls prevention, whose details were registered on the ProFaNE website. Any of these ProFaNE members logging onto the website during this period were automatically invited to indicate their level of agreement with each recommendation on a 9-point scale⁸ ranging from 1 (strongly agree) to 9 (strongly disagree), and to give a brief written explanation of the reasons for each of their

ratings. Of the 35 respondents, 17 were clinicians, 13 were academics and 5 belonged to other occupations (eg, epidemiologist, hospital manager, PhD student). Most people (n = 19) had between 2 and 5 years of experience working in the field of falls prevention, 11 had >5 years experience and 5 had <2 years experience.

4. We then carried out a face-to-face consultation with a large group of people working in the field of falls prevention, five of whom had also participated in the internet consultation process, in order to permit in-depth debate about the recommendations. A half-day workshop was convened during an annual meeting attended by 31 people, comprising 12 clinicians, 12 academics and 7 people who listed other occupations (eg, combined clinician and researcher). Most (n = 19) had >5 years experience in the field of falls prevention, nine participants had 2–5 years of experience and two had <2 years of experience. The core group member with primary responsibility for each recommendation gave a 10 min presentation outlining the recommendation, the evidence on which it was based, and the ratings and comments from the website consultation. Extensive discussion followed each presentation. To ensure accurate consideration and reporting of the comments made at the workshop, it was audiotaped and transcribed, and notes taken to aid interpretation of the transcript.
5. Written drafts of the recommendations and the evidence on which they were based were then completed by the co-authors and circulated within this core group. The co-authors critically discussed the content and presentation of the recommendations and agreed formats for dissemination in a final meeting. After a final draft of each recommendation had been circulated, LY took responsibility for collating the recommendations into draft documents for dissemination, incorporating comments on the drafts from all co-authors.

RESULTS

Tables 2 and 3 present the final recommendations, a summary of the evidence on which they were based, and the website ratings of the level of agreement with each recommendation. Agreement with the early draft of the recommendations presented on the website was already uniformly high, with a median agreement score at or just one point lower than the maximum agreement. Although at least 75% of the ratings for every draft recommendation were firmly in agreement (scoring at least 3 out of 9), a few individuals registered mild disagreement with some recommendations (giving isolated scores of 6 or 7 out of 9). Constructive critical comments made

Table 1 Overview of the steps involved in developing the recommendations

Step	Development activities	Participants
1. (a) (b)	Seven key topics identified Oral presentation of topics for comment	Core group (authors) ProFaNE members attending network meeting (including all workpackages)
2. (a) (b)	Seven outline recommendations developed Recommendations refined using Workpackage 4 discussion board	Core group (authors) Members of ProFaNE Workpackage 4
3.	Website consultation	Members of ProFaNE registered on website
4.	Workshop consultation	All researchers attending the annual meeting on mobility and exercise in older people
5.	Final drafts of recommendations and evidence developed, circulated, discussed and agreed.	Core group (authors)

Table 2 Recommendations for promoting uptake of falls-related interventions

Recommendation (clarification)	Rating*	General theory/evidence	Falls-related theory/evidence
1. Raise awareness in the general population that undertaking specific physical activities has the potential to improve balance and prevent falls. (Uptake may be encouraged by promoting greater awareness among older people, their families and carers, and health professionals of how undertaking specific physical activities may contribute to improving balance and reducing the risk of falls.)	2 (1–3)	For people to make well-informed, rational, positive choices about what forms of health-promoting behaviour they should carry out, it is necessary for them to have basic information about the benefits of preventive behaviours. ¹³	Falls are often regarded as an inevitable consequence of ageing, ¹⁴ and most older people assume that falls prevention involves unwanted activity restriction in order to reduce risk. There is little awareness among older people and carers that falls can be actively prevented by improving strength and balance. ^{9 15}
2. When offering or publicising interventions, promote immediate benefits that fit with a positive self-identity. (Examples of benefits that are highly valued by older people include increased independence, confidence in functional capabilities and proactive self-management of health.)	2 (1–3)	Uptake of an activity is influenced by whether it seems compatible with the individual's identity and social norms. ¹⁶ Uptake is usually promoted more by perceived benefits of preventive activities than by perceived risk of harm. ¹⁷	Older people may refuse to engage in falls prevention if they consider it suitable only for old, frail or anxious people at high risk of falling, since this is a negative social identity. ^{9 18 19} The reasons older people give for undertaking strength-training and balance-training focus on the many immediate benefits compatible with a positive identity (eg interest, enjoyment, increased confidence, maintaining general health, mobility and independence) rather than reducing the risk of a possible fall some time in the future. ^{6 10 20}

*Median agreement rating (with interquartile range in brackets) on the 9-point scale used in the internet consultation.

during the website consultation and at other stages of the consultation process resulted in further refinement of the recommendations. The important changes are outlined below.

Modifications of the recommendations for promoting the uptake of falls-related interventions

The first recommendation provoked discussion about the effectiveness and cost effectiveness of falls-related interventions for the general population of older people. Since the evidence base for this is not yet conclusive,^{2 4 5 12} the final recommendation was cautiously worded to suggest that awareness at a population level regarding the potential benefits of these activities should be raised.

The earliest draft of the second recommendation suggested emphasising the positive (physical) benefits of falls prevention rather than a reduction in undesirable events (ie, falls). Discussion in a wider group the following day immediately revealed that this formulation had the potential to be misinterpreted as suggesting that a reduction in the risk of falls should not be mentioned at all. Similarly, a draft recommendation suggesting that the multiple benefits of physical activity should be promoted proved ambiguous (some people took it to refer to the benefits of general physical activity rather than the general physical benefits of falls-prevention exercises), and was therefore merged with the second recommendation.

Modifications of the recommendations for promoting the uptake and adherence to falls-related interventions

Originally, the third recommendation proposed that all forms of social encouragement should be maximised, but comments and debate highlighted the risk that excessive social pressure could be insensitive to the autonomy of the individual, and so a less strong formulation was adopted. A further comment was that it would be useful to prioritise the most effective forms of social encouragement. However, we decided that we could not do this because there is currently no directly relevant research on which to base such a prioritisation, and the most effective form of encouragement may vary depending on the context and priorities of the individual (ie, the fourth recommendation).

The wording of the fifth recommendation was changed to use the term "self-management" rather than the term "self-help", and to note that the health professional must supervise activities to ensure safety. This was because commentators noted that not all older people were able and willing to undertake falls-prevention activities independently, and that the health professional played a crucial role in ensuring the right level of support. Comments on the sixth recommendation focused on the weakness of the evidence on which to base recommendations for using specific methods to promote adherence in falls-related interventions, and so the wording of this recommendation highlights the need to assess the processes that influence adherence in this context.

DISCUSSION

The recommendations we developed highlighted the need for: disseminating the message that physical activity can improve balance; promoting the immediate benefits of interventions; ensuring that interventions support a positive identity and confidence in self-management; tailoring interventions to the specific situation and values of the individual; using social encouragement to engage older people; and employing validated methods to maintain longer-term adherence.

A number of limitations of the process of developing the recommendations need to be taken into account. A positive feature of the process was that the initial development of the recommendations was informed by substantial qualitative and quantitative studies of the views of a wide range of older people.^{6 9 10} However, further consultation with older people is required to confirm the acceptability and appropriateness of the final recommendations. A large number of clinicians and researchers contributed to the refinement of the recommendations, and expressed support for them. However, only a minority of those registered on the falls-prevention website rated the recommendations. Since all the experts attending the subsequent open meeting also endorsed the recommendations, we do not think it likely that the views of the non-respondents to our website consultation would have differed greatly; probably, they simply did not access the site during this period. However, only a qualitative process of achieving consensus for

Table 3 Recommendations for promoting uptake and adherence to falls-related interventions

Recommendation (clarification)	Rating*	General theory/evidence	Falls-related theory/evidence
3. Utilise a variety of forms of social encouragement to engage older people in interventions. (Uptake may be encouraged by the use of personal invitations to participate (preferably from a health professional) and positive media images and peer role models to illustrate the social acceptability, safety and multiple benefits of taking part. Uptake and adherence may be encouraged by ongoing support from family, peers, and professionals.)	1 (1–3) 2 (1–3) 1 (1–2) 1 (1–3)	Known social influences on health-related behaviour are encouragement, approval and social support from health professionals and other sources ¹ and role models who provide an example of successful accomplishment of health-related goals. ²¹	Research in older people indicates that concern about social disapproval poses a barrier to undertaking physical activity, although social support, positive media images and real-life examples of ordinary people doing physical activity could promote greater physical activity. ^{22–24} Qualitative research on attitudes to falls prevention programmes is consistent with this, and also suggests that an invitation from a health professional to participate is important, and that likes and dislikes of social contacts in group interventions may strongly influence participation. ^{6, 11}
4. Ensure that the intervention is designed to meet the needs, preferences and capabilities of the individual. (There is a need to consider the individual's lifestyle, values, and ethnicity, and environmental factors such as place of residence and access to services.)		Psychological research suggests that adherence to interventions can be promoted by addressing the specific beliefs, goals and difficulties of the individual relevant to participation. ^{25, 26}	A systematic review of views of falls-prevention programmes found that views about what lifestyle changes are acceptable vary widely, and that people have different needs and desires in relation to prevention programmes. ¹¹ A qualitative study of the views of 66 older people on falls-prevention advice found that participants rejected advice that they felt did not suit their circumstances. ⁹
5. Encourage confidence in self-management rather than dependence on professionals, by giving older people an active role. (Although some supervision is necessary for safety, the older person should be able to select from different interventions, different formats of the same intervention, or from among a range of intervention goals.)		Giving the individual an active role in selecting activities and setting goals increases motivation and self-efficacy (ie, confidence in the ability to carry out a behaviour), which in turn promotes adherence. ^{21, 27}	Self-efficacy exerts a consistently powerful influence on the exercise behaviour of older adults, particularly its initiation, whereas self-regulatory skills are important in sustaining exercise behaviour. ²⁸ Carrying out tai chi, which has been used as a form of falls prevention, ²⁹ has been shown to increase self-efficacy levels, which in turn improves adherence. ³⁰
6. Draw on validated methods for promoting and assessing the processes that maintain adherence, especially in the longer term. (These could include encouraging realistic positive beliefs, assisting with planning and implementation of new behaviours, building self-confidence, and providing practical support.)		A review of research on adherence to prolonged therapeutic programmes concluded that it is most effective to combine a variety of approaches that have been shown to increase adherence. ¹	Findings from research (mainly qualitative) on attitudes to falls prevention interventions suggest that uptake and adherence are indeed influenced by factors identified as important to adherence to other therapies, ¹ such as practical support, encouragement from therapists, the belief that the intervention is necessary and effective, and confidence in being able to carry it out. ^{6, 11}

*Median agreement rating (with interquartile range in brackets) on the 9-point scale used in the internet consultation.

further refinements of the recommendations was used. Therefore, further quantitative evaluation of the views of a purposive sample of professionals working in the field of falls prevention could confirm their appropriateness.

These recommendations represent a consensus based on current knowledge and evidence, but the evidence base from which these recommendations were developed was limited, and not always specific to falls prevention. To increase the effectiveness of falls-prevention interventions, further research is needed to experimentally confirm the features of falls-prevention programmes that will encourage older people's engagement in them.

Authors' affiliations

L Yardley, University of Southampton, Southampton, UK
N Beyer, Department of Physical Therapy, Copenhagen University Hospital, Bispebjerg, Copenhagen, Denmark
K Hauer, Robert-Bosch-Krankenhaus, Stuttgart, Germany
Kevin McKee, University of Sheffield, Sheffield, UK
C Ballinger, London South Bank University, London, UK
C Todd, University of Manchester, Manchester, UK

Competing interests: None.

We 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 (QLRT-2001-02705).

REFERENCES

- 1 **World Health Organization**. *Adherence to long-term therapies: evidence for action*. Geneva: World Health Organization, 2003.
- 2 **Skelton D**, Todd C. 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? Copenhagen: Health Evidence Network Synthesis, World Health Organisation, 2004.
- 3 **American Geriatrics Society, British Geriatrics Society, American Academy of Orthopaedic Surgeons Panel on falls prevention**. Guidelines for the prevention of falls in older persons. *J Am Geriatr Soc* 2001;**49**:664–72.
- 4 **Chang JT**, Morton SC, Rubenstein LZ, et al. Interventions for the prevention of falls in older adults: systematic review and meta-analysis of randomized controlled trials. *BMJ* 2004;**328**:680–3.
- 5 **Gillespie LD**, Gillespie WJ, Robertson MC, et al. Interventions for preventing falls in elderly people (Cochrane Review). *The Cochrane Library* 2001;(3):CD000340.
- 6 **Yardley L**, Bishop FL, Beyer N, et al. Older people's views of falls prevention interventions in six European countries. *Gerontologist* 2006;**46**:650–60.
- 7 **Grindley EJ**, Zizzi SJ. Using a multidimensional approach to predict motivation and adherence to rehabilitation in older adults. *Top Geriatr Rehabil* 2005;**21**:182–93.
- 8 **Raine R**, Sanderson C, Black N. Developing clinical guidelines: a challenge to current methods. *BMJ* 2005;**331**:631–3.
- 9 **Yardley L**, Donovan-Hall M, Francis K, et al. Older people's views about falls prevention: a qualitative study. *Health Educ Res* 2006;**21**:508–17.
- 10 **Yardley L**, Donovan-Hall M, Francis K, et al. Attitudes and beliefs that predict older people's intention to undertake strength and balance training. *J Gerontol Psychol Sci* 2007;**62B**:P119–25.
- 11 **McInnes E**, Askie L. Evidence review on older people's views and experiences of falls prevention strategies. *Worldviews Evidence-Based Nurs* 2004;**1**:20–37.
- 12 **Kannus P**, Sievanen H, Palvanen M, et al. Prevention of falls and consequent injuries in elderly people. *Lancet* 2005;**366**:1885–93.
- 13 **Michie S**, Dormandy E, Marteau T. The multi-dimensional measure of informed choice: a validation study. *Patient Educ Couns* 2002;**48**:87–91.
- 14 **Simpson J**, Darwin C, Marsh N. What are older people prepared to do to avoid falling? A qualitative study in London. *Br J Community Nurs* 2003;**8**:133–9.

- 15 **Commonwealth Department of Health and Aged Care.** *National falls prevention for older People Initiative "Step out with confidence"*. Canberra: Commonwealth of Australia, 2001.
- 16 **Terry DJ, Hogg MA, White KM.** The theory of planned behaviour: self-identity, social identity and group norms. *Br J Social Psychol* 1999;**38**:225–44.
- 17 **Witte K, Allen M.** A meta-analysis of fear appeals: implications for effective public health campaigns. *Health Educ Behav* 2000;**27**:591–615.
- 18 **Ballinger C, Payne S.** Falling from grace or into expert hands? Alternative accounts about falling in older people. *Br J Occup Ther* 2000;**63**:573–9.
- 19 **Health Education Board for Scotland.** *The construction of the risks of falling in older people: lay and professional perspectives*. Scotland: Health Education Board for Scotland, 2001. <http://www.hebs.scot.nhs.topics> (accessed 3 Apr 2007).
- 20 **Ballinger C, Clemson L.** Older people's views about community falls prevention: an Australian perspective. *Br J Occup Ther* 2006;**69**:263–70.
- 21 **Bandura A.** *Self-efficacy: the exercise of control*. New York: WHFreeman, 1997.
- 22 **King AC, Castro C, Wilcox S, et al.** Personal and environmental factors associated with physical inactivity among different racial-ethnic groups of US middle-aged and older-aged women. *Health Psychol* 2000;**19**:354–64.
- 23 **King AC, Rejeski WJ, Buchner DM.** Physical activity interventions targeting older adults: a critical review and recommendations. *Am J Prev Med* 1998;**15**:316–33.
- 24 **Ory M, Hoffman MK, Hawkins M, et al.** Challenging aging stereotypes: strategies for creating a more active society. *Am J Prev Med* 2003;**25**:164–71.
- 25 **Prochaska J, Diclemente C, Norcross J.** In search of how people change: applications to addictive behaviors. *Am Psychol* 1992;**47**:1102–14.
- 26 **Rutter D, Quine L.** Social cognition models and changing health behaviours. In: Rutter D, Quine L, eds. *Changing health behaviour*. Buckingham: Open University Press, 2002:1–27.
- 27 **Oettingen G, Gollwitzer PM.** Goal setting and goal striving. In: Brewer MB, Hewstone M, eds. *Emotion and motivation*. Oxford: Blackwell, 2004:165–83.
- 28 **Schutzer KA, Graves BS.** Barriers and motivations to exercise in older adults. *Prev Med* 2004;**39**:1056–61.
- 29 **Li F, Harmer P, Fisher KJ, et al.** Tai Chi and fall reductions in older adults: a randomized controlled trial. *J Gerontol A Biol Sci Med Sci* 2005;**60A**:187–94.
- 30 **Li F, McAuley E, Harmer P, et al.** Tai Chi enhances self-efficacy and exercise behavior in older adults. *J Aging Phys Activity* 2001;**9**:161–71.

Submit an eLetter, and join the debate

eLetters are a fast and convenient way to register your opinion on topical and contentious medical issues. You can find the "submit a response" link alongside the abstract, full text and PDF versions of all our articles. We aim to publish swiftly, and your comments will be emailed directly to the author of the original article to allow them to respond. eLetters are a great way of participating in important clinical debates, so make sure your voice is heard.