National Institute for Health and Care Excellence

Final

Falls: assessment and prevention in older people and people 50 and over at higher risk

Evidence review I: Maximising participation, adherence and continuation of falls prevention interventions

NICE guideline NG249

Evidence reviews underpinning recommendation 1.4.1 in the NICE guideline

April 2025

Final

This evidence review was developed by NICE

Disclaimer

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or service users. The recommendations in this guideline are not mandatory and the guideline does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Local commissioners and/or providers have a responsibility to enable the guideline to be applied when individual health professionals and their patients or service users wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with compliance with those duties.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the Welsh Government, Scottish Government, and Northern Ireland Executive. All NICE guidance is subject to regular review and may be updated or withdrawn.

Copyright

ISBN: 978-1-4731-6915-9

Contents

1. Maximising participation, adherence and continuation of falls prevention interventions 5
1.1. Review question 5
1.1.1. Introduction 5
1.1.2. Summary of the protocol 5
1.1.3. Methods and process 6
1.1.4. Effectiveness evidence 6
1.1.5. Summary of studies included in the effectiveness evidence 6
1.1.6. Economic evidence 14
1.1.7. Summary of included economic evidence 14
1.1.8. Economic model 14
1.1.9. Evidence statements 14
1.1.10. The committee's discussion and interpretation of the evidence 15
1.1.11. Recommendations supported by this evidence review 17
References 18

Appendices 19
Appendix A Review protocols 19
Appendix B Literature search strategies 30
Appendix C Effectiveness evidence study selection 55
Appendix D Effectiveness evidence 56
Appendix E Forest plots 82
Appendix F GRADEpro 85
Appendix G Economic evidence study selection 91
Appendix H Economic evidence tables 92
Appendix I Health economic model 92
Appendix J Excluded studies 93

1. Maximising participation, adherence and continuation of falls prevention interventions

1.1. Review question

What are the most effective methods for maximising participation, adherence and continuation of falls prevention interventions?

1.1.1. Introduction

Falls prevention interventions are most effective if participation is sustained, enabling the development of muscle strength, and improving balance. Continued adherence to falls prevention interventions requires significant behaviour change if it is to be successful. This can be achieved by addressing individual concerns about participation and promoting the advantages of peer support and social stimulation that accompany many intervention programmes. This guideline evaluates how falls prevention interventions can be sustained over time and considers the evidence for building adherence to and continuation of falls prevention interventions.

1.1.2. Summary of the protocol

For full details see the review protocol in Appendix A.

Table 1: PICO characteristics of review question

Population	• People aged 65 years and over. • People aged 50 to 64 years who have a condition or conditions that may put them at a higher risk of falling.
Interventions	Any specified methods aiming to improve participation, adherence, and continuation of falls prevention interventions, including: • goal setting • motivational interviewing • peer support/carer and family support. • telephone/text reminders/digital apps • education and information • method of delivery of intervention – individual, group, self-directed, virtual · specific cultural or inclusion interventions • social interventions • different intensities of intervention
Comparisons	• No method of improving participation, adherence, or continuation • Different methods of improving participation, adherence or continuation compared to one another
Outcomes	• Reduction in falls • Increased participation • Increased adherence • Continuation through follow-up period • Refusal/ non-response/ drop-out rate
Study design	• Randomised controlled trials (RCTs) • Systematic review of RCT

1.1.3. Methods and process

This evidence review was developed using the methods and process described in Developing NICE guidelines: the manual. Methods specific to this review question are described in the review protocol in appendix A.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

1.1.4. Effectiveness evidence

1.1.4.1. Included studies

Five studies from six publications were included in the review;[1-5, 7] these are summarised in Table 2 below. Arkkukangas 2019[1] and Tuvemo Johnson[5] are two publications from the same study. Evidence from these studies is summarised in the clinical evidence summary below (Table 3).

All studies in this review were in community-dwelling adults. Two of the studies compared motivational interviewing to usual care[1, 5] and [2], one study compared education to usual care[3], another compared a personalised feedback intervention to usual care[4], and one study[7] compared live video instructions, community exercises and unsupervised exercises.

Three studies reported adherence outcomes,[1, 4, 7] two studies reported participation,[2, 7] two studies reported number of falls[1,7] and two studies reported number of fallers.[3, 5]

See also the study selection flow chart in Appendix C, study evidence tables in Appendix D, forest plots in Appendix E and GRADEpro tables in Appendix F.

See the excluded studies list in Appendix J.

1.1.5. Summary of studies included in the effectiveness evidence

Table 2: Summary of studies included in the evidence review

Study	Intervention and comparison	Population	Outcomes	Comments
Arkkukangas 2019[1] Parallel RCT Participants home or at a health care centre.	Otago Exercise Programme plus motivational Interviewing (n=58) Otago Exercise Programme (n=61) Follow-up: 12 weeks	Community dwelling adults Mean age (SD): 83 (5) years Sex: 70% female Setting: 3 communities in central Sweden	Adherence; number of falls	There was a control group arm (n=56), which was not included because the comparison of interest was the addition of motivational interviewing to the exercise programme compared to the exercise programme alone. Tuvemo Johnson (2021) reported number of falls, and number of fallers at one year.

Study	Intervention and comparison	Population	Outcomes	Comments
Audsley 2020[2] Mixed-methods cluster-randomised feasibility RCT	Motivational interviewing and behaviour change techniques (6 sessions lasting 60 to 90 minutes) over 6 months following the Falls Management Exercise programme (n=20) Usual care (weekly, self-funded FaME exercise class after the 24 month Falls Management exercise programme) (n=30)	Community dwelling adults aged 65 years or older Mean age (SD): IG: 76.9 (7); CG: 73.8 (6.4) years Sex: IG: 81.3%; CG: 69% female. Setting: Derby city, Rutland and Leicestershire counties, UK.	Participation	
Cattaneo 2019[3] NEUROFALL randomised controlled trial Multicentre	Education and tailored home exercise intervention (education involved peer to peer and clinician sessions of 1 hour with multiple components to foster brainstorming, problem-solving and action plan) (n=42) Usual care – ongoing usual treatments plus two 1-hour sessions to teach stretching exercises) (n=48)	Community dwelling adults with neurological conditions (stroke, MS, Parkinson disease) Mean age (SD): IG: 61 (15); CG: 63 (11) years Sex: IG: 38%; CG: 35% female Setting: 3 Italian field centres	Number of fallers	

Study	Intervention and comparison	Population	Outcomes	Comments
Hawley-Hague 2023 Randomised controlled trial	8–12-week home or group-based exercise programme plus the use of 'Motivate me' (health professional app) and 'My activity programme' (patient app) on study provided smartphones (n= 26)	Community dwelling adults 50 years and older Mean age (SD): 76.6 Sex: 68% female Setting: community Manchester, UK	Adherence Number of fallers	Study also reported number of falls, but this outcome was not reported in a way that could be analysed
Taylor 2019[4] Randomised controlled trial	Personalised feedback intervention, home visits by an Occupational Therapist (n=12) Usual care (generalised education intervention) (n=12)	Community dwelling adults 65 years and older Mean age (SD): 74.2 (7.5) Sex: 63.6% female Setting: Richmond, Virginia, USA	Adherence	This study was to increase adherence to environmental fall prevention recommendations
Wu 2010[7] Randomised controlled trial	Live video instructions (n=22) Community exercises (n=20) Unsupervised exercise (n=22)	Community dwelling adults 65 years and older having falls in past year and/or significant fear of falling Mean age (SD): IG1: 76.1 (7.9); IG2: 74.1 (6.9); IG3: 75.9 (6.3) years Sex: NR Setting: USA	Adherence, participation, number of falls	

See Appendix D for full evidence tables.

Summary of the effectiveness evidence

Table 3: Clinical evidence summary: Motivational interviewing + exercise versus exercise

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with Control	Risk difference with Motivational interviewing	
Adherence	119 (1 RCTs)	⨁◯◯◯ Very low[a,b,c]	**RR 0.97** (0.64 to 1.48)	426 per 1,000	13 fewer per 1,000 (153 fewer to 205 more)	MID: 0.8 to 1.25 (precision: CI crosses 2 MIDs) **No clinical difference**
Number of falls	119 (1 RCT)	⨁◯◯◯ Very low[a,c]	**Rate ratio 1.19** (0.86 to 1.65)	-	-	MID: 0.8 to 1.25 (precision: CI crosses 1 MID) **No clinical difference**
Number of fallers	119 (1 RCT)	⨁◯◯◯ Very low[a,c]	**RR 1.58** (1.06 to 2.36)	361 per 1,000	209 more per 1,000 (from 22 more to 490 more)	MID: 0.8 to 1.25 (precision: CI crosses 1 MID) **Benefit for Control**
Participation (achieved more than 150 minutes of moderate to vigorous PA)	45 (1 RCT)	⨁◯◯◯ Very low[a,c]	**RR 1.39** (0.80 to 2.43)	448 per 1,000-	175 more per 1,000 (90 fewer to 641 more)-	MID: 0.8 to 1.25 (precision: CI crosses 1 MIDs) **No clinical difference**

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 4: Clinical evidence summary: Education versus control

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with Control	Risk difference with Education	
Number of fallers	90 (1 RCT)	⨁◯◯◯ Very low[a,b]	**RR 1.04** (0.49 to 2.20)	-	-	MID: 0.8 to 1.25 (precision: CI crosses 2 MIDs) **No difference**

Table 5: Clinical evidence summary: Personalised feedback versus control

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with Control	Risk difference with Personalised feedback	
Adherence (attended 100%)	22 (1 RCT)	⨁◯◯◯ Very low[a,b]	**RR 1.67** (0.71 to 3.93)	400 per 1,000	268 more per 1000 (from 116 fewer to 1172 more)	MID: 0.8 to 1.25 (precision: CI crosses 2 MIDs) **Clinical benefit for Personalised feedback**

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 6: Clinical evidence summary: Live video instructions versus community exercises

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with community exercises	Risk difference with Live video instructions	
Adherence (attended 100%)	42 (1 RCT)	⨁◯◯◯ Very low[a,b]	**RR 0.97** (0.65 to 1.46)	700 per 1,000	21 fewer per 1000 (from 329 fewer to 189 more)	MID: 0.8 to 1.25

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with community exercises	Risk difference with Live video instructions	
						(precision: CI crosses 2 MIDs) **No clinical difference**
Participation (total exercise time in hours)	42 (1 RCT)	⊕◯◯◯ Very low[a,b]	-	The mean participation (total exercise time in hours) was 31	**MD 1 lower** (8.27 lower to 6.27 higher)	MID: 0.5 x SMD= +/- 10.5 (precision: CI crosses 0 MID) **No clinical difference**
Number of falls	42 (1 RCT)	⊕◯◯◯ Very low[a,b]	**Rate ratio 1.36** (0.23 to 8.16)	-	-	MID: 0.8 to 1.25 (precision: CI crosses 2 MIDs) Benefit for Community exercises

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 7: Clinical evidence summary: Live video instructions versus unsupervised exercises

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with Unsupervised exercise	Risk difference with Live video instructions	
Adherence (attended 100%)	44 (1 RCT)	⊕◯◯◯ Very low[a,b]	**RR 1.88** (1.01 to 3.49)	364 per 1,000	320 more per 1000 (from 18 more to 520 more)	MID: 0.8 to 1.25 (precision: CI crosses 1 MID)

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with Unsupervised exercise	Risk difference with Live video instructions	
						Clinical benefit for Live video instructions
Number of falls	44 (1 RCT)	⊕◯◯◯ Very low[a,b]	**Rate ratio 0.50** (0.13 to 2.00)	-	-	MID: 0.8 to 1.25 (precision: CI crosses 2 MIDs) **Benefit for Live video instructions**
Participation (total exercise time in hours)	44 (1 RCT)	⊕◯◯◯ Very low [a,b]	-	The mean participation (total exercise time in hours) was 17	**MD 13 higher** (2.89 higher to 23.11 higher)	MID: 0.5 x SMD= +/- 10.5 (precision: CI crosses 1 MID) **Clinical benefit for Live video instructions**

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 8: Clinical evidence summary: Community exercises versus unsupervised exercises

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with unsupervised exercise	Risk difference with Community exercises	
Adherence (attended 100%)	42 (1 RCT)	⊕◯◯◯ Very low[a,b]	**RR 1.93** (1.03 to 3.59)	364 per 1,000	335 more per 1,000 (from 25 more to 531 more)	MID: 0.8 to 1.25

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with unsupervised exercise	Risk difference with Community exercises	
						(precision: CI crosses 1 MID) **Benefit for Community exercises**
Number of falls	42 (1 RCT)	⊕◯◯◯ Very low[a,b]	**Rate ratio 0.37** (0.07 to 1.82)	-	-	MID: 0.8 to 1.25 (precision: CI crosses 1 MID) **Benefit for Community exercises**
Participation (total exercise time in hours)	42 (1 RCT)	-	-	The mean participation (total exercise time in hours) was 17	**MD 14 higher** (3.77 higher to 24.23 higher)	MID: 0.5 x SMD= +/- 10.5 (precision: CI crosses 1 MID) **Benefit for Community exercises**

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 9: Clinical evidence summary: Digital phone apps versus control

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with unsupervised exercise	Risk difference with Community exercises	
Adherence (EARS self-reported)	50 (1 RCT)	⊕◯◯◯ Very low[a,b]	-	The mean adherence (EARS self-reported) was **14.9**	MD **0.3 higher** (3.57 lower to 4.17 higher)	MID: 0.5 x control group SD (precision: CI crosses 2 MIDs)

Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects		Comments
				Risk with unsupervised exercise	Risk difference with Community exercises	
						No difference
Number of fallers	50 (1 RCT)	⊕◯◯◯ Very low[c,d]	**RR 0.92 (0.59 to 1.45)**	-	**-**	MID: 0.8 to 1.25 (precision: CI crosses 2 MIDs) No difference

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants for a self-reported outcome and study attrition.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.5 x control group SD where no baseline values given) for continuous outcomes.

c. Downgraded by 2 increments for risk of bias due to issues regarding study attrition and adherence to the intervention.

d. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes.

See Appendix F for full GRADEpro tables

1.1.6. Economic evidence

1.1.6.1. Included studies

No health economic studies were included.

1.1.6.2. Excluded studies

No relevant health economic studies were excluded due to assessment of limited applicability or methodological limitations.

See also the health economic study selection flow chart in Appendix G.

1.1.7. Summary of included economic evidence

No health economic studies were included for this review question.

1.1.8. Economic model

This area was not prioritised for new cost-effectiveness analysis.

1.1.9. Evidence statements

1.1.9.1. Economic

No relevant economic evaluations were identified.

1.1.10. The committee's discussion and interpretation of the evidence

1.1.10.1. The outcomes that matter most

The committee discussed and agreed that all outcomes are considered equally important, therefore all outcomes are considered critical. This review found evidence for the outcomes of reduction in falls, participation, and adherence. No evidence was found for the outcomes of continuation through the follow-up period and refusal/ non-response/ drop-out rate.

1.1.10.2. The quality of the evidence

All evidence was rated to be of very low quality. Outcomes were generally downgraded due to the high risk of bias, imprecision and inconsistency. The high risk of bias in studies was commonly due to a lack of blinding of participants, and assessors or study attrition. Although blinding of interventions to improve adherence and/or participation is difficult, it is possible through attention placebos for example.

1.1.10.3. Benefits and harms

Motivational interviewing and exercise versus exercise

Evidence from two studies showed no clinical difference in motivational interviewing compared to control for adherence in community-dwelling individuals, with very low confidence in the effects. However, evidence from one study showed a clinical benefit for the control group for the number of falls with very low confidence in the effects, while a clinical benefit was found for motivational interviewing for participation with very low confidence in the effects.

Education versus control and personalised feedback versus control

Evidence from one study showed no clinical differences for education compared to control for the number of fallers, while evidence from 1 study showed a clinical benefit for personalised feedback interventions compared to control for adherence with both outcomes having very low confidence in the effects.

Live video instructions versus community exercises versus unsupervised exercises

All evidence for live video instructions versus community exercises versus unsupervised exercises came from one single study. Results suggested a clinical benefit for community exercises compared to live video instructions for the number of falls with very low confidence in the effects. Clinical benefits were also found for live video instructions compared to unsupervised exercises for adherence, number of falls, and participation with very low confidence in all the effects. Similarly, clinical benefits were suggested for community exercises compared to unsupervised exercises for adherence, number of falls, and participation with very low confidence in the effects.

Digital phone apps versus Control

All evidence digital phone apps versus control came from one single study. Results showed no difference between the treatment groups for number of fallers and adherence to the exercise intervention. This study was rated very low quality due to risk of bias and imprecision around the effect estimate.

Committee discussion

The committee noted that all studies were carried out within community settings. All the studies had low numbers of participants and were all graded as very low quality.

Although several of the interventions showed some benefit in terms of adherence or participation the committee agreed that the evidence was very weak and could not be used to base strong recommendations on. They commented on two studies found on motivational interviewing comprising of open-ended questions and reflective listening, noting that motivational interviewing can be a complex intervention and is not straight forward to deliver.

They did however acknowledge the benefits demonstrated for supervised exercise whether delivered by means of group sessions or remotely via video. The committee commented that exercise with some support or oversight, whether live video or as part of a group seemed to have some benefit in terms of participation or adherence rather than no support at all, which reflected what they would expect. The committee noted the social aspects of group activity are likely to have additional beneficial effect, such as helping in relieving loneliness and feelings of isolation. The committee recognised people are more likely to continue with exercise as part of a group rather than individually. However not everyone would want to do group exercise, and a personalised approach is needed. The committee agreed that some form of supervised exercise may result in improved participation, but people should be offered choice in how exercise is delivered.

The committee discussed what was meant by supervised programmes acknowledging this includes elements that are unsupervised where people would continue independently with some overview of supervision such as regular telephone/ interval assessments as part of follow-up by a health professional to ensure that they can do the exercise and there is progression. The committee agreed supervised exercise may consist of an instructor delivering an in-person group session or may be virtual for a person to participate in their own residence. Virtual sessions are being used in current practice, but this is not widespread. Most services have reverted back to traditional methods of delivery post Covid. In person sessions may be more suitable for frailer people who could require more supervision.

One study examined the use of a digital app on a mobile phone to promote adherence to an exercise intervention. The results showed no difference in the number of fallers or adherence to the exercise intervention between the treatment groups. As this study was only based on 50 participants and the outcomes were rated very low quality the committee did not consider this in their recommendation making.

The committee advised that any changes to be made to interventions for falls prevention should be discussed with the person in order that the changes are feasible and more likely to be adhered to. They agreed that falls prevention programmes are more likely to be successful if they accommodate the person’s specific requirements and address any barriers to participation, such as fear of falling when exercising.

1.1.10.4. Cost effectiveness and resource use

There was no existing cost effectiveness evidence for this review question. The committee discussed that there is considerable variation in how fall prevention exercise programmes are delivered currently, and it is hard to predict the resource impact. The committee explained that the recommendation on supervised exercise may result in more people adhering with the intervention, and it will also require more staff time to provide supervision. However, the committee discussed flexibility in how supervision could be undertaken. For example, it could be in-person group sessions or regular telephone check-ins. Also, the committee explained that not everyone would opt for supervised exercise. The committee discussed that some people may not feel comfortable exercising in front of others or find

having set times each week to attend classes difficult to manage. They may prefer the flexibility of online exercise programs. As a result, the committee does not expect the resource impact to be significant. Also, they noted that any additional costs would be offset by the reduced falls and associated cost savings resulting from improved adherence to fall prevention exercises. For example, severe falls increase with age and may require expensive surgical treatment, resulting in significant costs to the NHS and a negative impact on the quality of life.

1.1.11. Recommendations supported by this evidence review

This evidence review supports recommendations 1.4.1 in the NICE guideline.

References

1. Arkkukangas M, Soderlund A, Eriksson S, Johansson A-C. Fall Preventive Exercise With or Without Behavior Change Support for Community-Dwelling Older Adults: A Randomized Controlled Trial With Short-Term Follow-up. Journal of geriatric physical therapy (2001). 2019; 42(1):9-17

2. Audsley S, Orton E, Pip L, Denise K. Keeping adults physically active after falls management exercise programmes end. Physiotherapy (United Kingdom). 2020; 107(supplement1):e20-e21

3. Cattaneo D, Gervasoni E, Pupillo E, Bianchi E, Aprile I, Imbimbo I et al. Educational and Exercise Intervention to Prevent Falls and Improve Participation in Subjects With Neurological Conditions: The NEUROFALL Randomized Controlled Trial. Frontiers in Neurology. 2019; 10:865

4. Taylor SF, Coogle CL, Cotter JJ, Welleford EA, Copolillo A. Community-Dwelling Older Adults' Adherence to Environmental Fall Prevention Recommendations. Journal of applied gerontology : the official journal of the Southern Gerontological Society. 2019; 38(6):755-774

5. Tuvemo Johnson S, Anens E, Johansson AC, Hellstrom K. The Otago Exercise Program With or Without Motivational Interviewing for Community-Dwelling Older Adults: A 12-Month Follow-Up of a Randomized, Controlled Trial. Journal of Applied Gerontology. 2021; 40(3):289-299

6. Whiting PF, Rutjes AWS, Westwood ME, Mallett S, Deeks JJ, Reitsma JB et al. QUADAS-2: a revised tool for the quality assessment of diagnostic accuracy studies. Annals of Internal Medicine. 2011; 155(8):529-536

7. Wu MW, Lee TT, Lai SM, Huang CY, Chang TH. Evaluation of Electronic Health Records on the Nursing Process and Patient Outcomes Regarding Fall and Pressure Injuries. Computers, informatics, nursing : CIN. 2019; 37(11):573-582

Appendices

Appendix A Review protocols

A.1 Review protocol for What are the most effective methods for maximizing participation, adherence and continuation of falls prevention interventions?

ID	Field	Content
1.	Review title	What are the most effective methods for maximising participation, adherence and continuation of falls prevention interventions?
2.	Review question	What are the most effective methods for maximising participation, adherence and continuation of falls prevention interventions?
3.	Objective	To provide evidence of the best methods for improving participation adherence and continuation in falls prevention interventions.
4.	Searches	The following databases (from inception) will be searched: • Cochrane Central Register of Controlled Trials (CENTRAL) • Cochrane Database of Systematic Reviews (CDSR) • Embase • MEDLINE • Epistemonikos Searches will be restricted by: • English language studies • Human studies

		Other searches: • Reference searching • Citation searching • Inclusion lists of systematic reviews The searches may be re-run 6 weeks before the final committee meeting and further studies retrieved for inclusion if relevant. The full search strategies will be published in the final review. Medline search strategy to be quality assured using the PRESS evidence-based checklist (see methods chapter for full details).
5.	Condition or domain being studied	Falls: an unexpected event in which the participants come to rest on the ground, floor, or lower level.
6.	Population	Inclusion: • People aged 65 years and over • People aged 50 to 64 years who have a condition or conditions that may put them at a higher risk of falling. Strata: community, residential care and hospitals. Exclusion: Exclusion: any age group that does not fit the inclusion criteria.

7.	Intervention/Phenomenon of interest	Any specified methods aiming to improve participation, adherence and continuation of falls prevention interventions, including: • goal setting • motivational interviewing • peer support/carer and family support • telephone/text reminders/digital apps • education and information • method of delivery of intervention – individual, group, self-directed, virtual • specific cultural or inclusion interventions • social interventions • different intensities of intervention
8.	Comparator	• No method of improving participation, adherence or continuation • Different methods of improving participation, adherence or continuation compared to one another
9.	Types of study to be included	• Randomised controlled trials (RCTs) • Systematic review of RCTs Published NMAs and IPDs will be considered for inclusion.
10.	Other exclusion criteria	• Non-English language studies.

		• Conference abstracts will be excluded as it is expected there will be sufficient full text published studies available. Intervention part of review: • Non-randomised studies
11.	Context	Perceptions and experiences of older people, their families and carers of participation in adherence to, and continuation of interventions to prevent falls. This includes people in the community and within hospitals and other healthcare settings.
12.	Primary outcomes (critical outcomes)	All outcomes are considered equally important for decision making and therefore have all been rated as critical: • Reduction in falls • Increased participation • Increased adherence • Continuation through follow-up period • Refusal/ non-response/ drop-out rate
13.	Data extraction (selection and coding)	EndNote will be used for reference management, sifting, citations and bibliographies. All references identified by the searches and from other sources will be uploaded into EPPI reviewer and de-duplicated. 10% of the abstracts will be reviewed by two reviewers, with any disagreements resolved by discussion or, if necessary, a third independent reviewer.

		The full text of potentially eligible studies will be retrieved and will be assessed in line with the criteria outlined above. A standardised form will be used to extract data from studies (see Developing NICE guidelines: the manual section 6.4). 10% of all evidence reviews are quality assured by a senior research fellow. This includes checking: • papers were included /excluded appropriately. • a sample of the data extractions • correct methods are used to synthesise data • a sample of the risk of bias assessments Disagreements between the review authors over the risk of bias in particular studies will be resolved by discussion, with involvement of a third review author where necessary.
14.	Risk of bias (quality) assessment	Risk of bias will be assessed using the appropriate checklist as described in Developing NICE guidelines: the manual. For Intervention reviews • Systematic reviews: Risk of Bias in Systematic Reviews (ROBIS) • Randomised Controlled Trial: Cochrane RoB (2.0)
15.	Strategy for data synthesis	Pairwise meta-analyses will be performed using Cochrane Review Manager (RevMan5). Fixed-effects (Mantel-Haenszel) techniques will be used to calculate risk ratios for the binary outcomes where possible. Continuous outcomes will be analysed using an inverse variance method for pooling weighted mean differences. If sufficient data is available, meta-regression or NMA-meta-regression will be conducted. Heterogeneity between the studies in effect measures will be assessed using the I^2 statistic and visually inspected. An I^2 value greater than 50% will be considered indicative of substantial heterogeneity. Sensitivity analyses will be conducted based on pre-specified subgroups using stratified meta-analysis to explore the heterogeneity in effect estimates. If this does not explain the heterogeneity, the results will be presented pooled using random effects.

		• GRADEpro will be used to assess the quality of evidence for each outcome, taking into account individual study quality and the meta-analysis results. The 4 main quality elements (risk of bias, indirectness, inconsistency, and imprecision) will be appraised for each outcome. Publication bias will be considered with the guideline committee, and if suspected will be tested for when there are more than 5 studies for that outcome. The risk of bias across all available evidence was evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group http://www.gradeworkinggroup.org/ • Where meta-analysis is not possible, data will be presented, and quality assessed individually per outcome. Consider groups identified in the equality impact assessment: • Disability: People with mental health problems have limited access to physiotherapy services within inpatient mental health. People with learning disabilities are at risk of falls. Tailored education and information may be required for people with learning disabilities to meet their needs. • Sex differences in balance outcomes have been reported within the literature in some populations at risk of falls. • Other definable characteristics (these are examples): - People in Gypsy, Roma and Traveller communities. - People not registered with a GP or in contact with health and social care services.	
16.	Analysis of sub-groups	Subgroups that will be investigated if heterogeneity is present: none	
17.	Type and method of review	☒	Intervention
		☐	Diagnostic
		☐	Prognostic
		☐	Qualitative
		☐	Epidemiologic

		☐	Service Delivery
		☒	Other (please specify) Mixed methods
18.	Language	English	
19.	Country	England	
20.	Anticipated or actual start date	September 2022	
21.	Anticipated completion date	TBC	
22.	Stage of review at time of this submission	Review stage	Started / Completed
		Preliminary searches	☐ / ☐
		Piloting of the study selection process	☐ / ☐
		Formal screening of search results against eligibility criteria	☐ / ☐
		Data extraction	☐ / ☐
		Risk of bias (quality) assessment	☐ / ☐
		Data analysis	☐ / ☐
23.	Named contact	5a. Named contact Julie Nielson Centre for Guidelines, NICE 5b Named contact e-mail Guidelines8@nice.org.uk	

		5c Organisational affiliation of the review National Institute for Health and Care Excellence (NICE)
24.	Review team members	From NICE: Gill Ritchie Julie Neilson Annette Chalker Sophia Kemmis-Betty Joseph Runicles David Nicholls Tamara Diaz
25.	Funding sources/sponsor	Development of this systematic review is being funded by NICE.
26.	Conflicts of interest	All guideline committee members and anyone who has direct input into NICE guidelines (including the evidence review team and expert witnesses) must declare any potential conflicts of interest in line with NICE's code of practice for declaring and dealing with conflicts of interest. Any relevant interests, or changes to interests, will also be declared publicly at the start of each guideline committee meeting. Before each meeting, any potential conflicts of interest will be considered by the guideline committee Chair and a senior member of the development team. Any decisions to exclude a person from all or part of a meeting will be documented. Any changes to a member's declaration of interests will be recorded in the minutes of the meeting. Declarations of interests will be published with the final guideline.
27.	Collaborators	Development of this systematic review will be overseen by an advisory committee who will use the review to inform the development of evidence-based recommendations in line with section 3 of Developing NICE guidelines: the manual. Members of the guideline committee are available on the NICE website: [NICE guideline webpage].
28.	Other registration details	N/A
29.	Reference/URL for published protocol	https://www.nice.org.uk/guidance/qs86

30.	Dissemination plans	NICE may use a range of different methods to raise awareness of the guideline. These include standard approaches such as: • notifying registered stakeholders of publication • publicising the guideline through NICE's newsletter and alerts • issuing a press release or briefing as appropriate, posting news articles on the NICE website, using social media channels, and publicising the guideline within NICE.	
31.	Keywords	Adults; Falls; Intervention	
32.	Details of existing review of same topic by same authors	Not applicable	
33.	Current review status	☒	Ongoing
		☐	Completed but not published
		☐	Completed and published
		☐	Completed, published and being updated
		☐	Discontinued
34.	Additional information		
35.	Details of final publication	www.nice.org.uk	

A.2 Health economic review protocol

Table 9: Health economic review protocol

Review question	All questions – health economic evidence
Objectives	To identify health economic studies relevant to any of the review questions.
Search criteria	• Populations, interventions and comparators must be as specified in the clinical review protocol above. • Studies must be of a relevant health economic study design (cost–utility analysis, cost-effectiveness analysis, cost–benefit analysis, cost–consequences analysis, comparative cost analysis). • Studies must not be a letter, editorial or commentary, or a review of health economic evaluations. (Recent reviews will be ordered although not reviewed. The bibliographies will be checked for relevant studies, which will then be ordered.) • Unpublished reports will not be considered unless submitted as part of a call for evidence. • Studies must be in English.
Search strategy	A health economic study search will be undertaken using population-specific terms and a health economic study filter – see appendix B below.
Review strategy	Studies not meeting any of the search criteria above will be excluded. Studies published before 2007, abstract-only studies and studies from non-OECD countries or the USA will also be excluded. Studies published after 2007 that were included in the previous guideline(s) will be reassessed for inclusion and may be included or selectively excluded based on their relevance to the questions covered in this update and whether more applicable evidence is also identified. Each remaining study will be assessed for applicability and methodological limitations using the NICE economic evaluation checklist which can be found in appendix H of Developing NICE guidelines: the manual (2014).[7] **Inclusion and exclusion criteria** • If a study is rated as both 'Directly applicable' and with 'Minor limitations', then it will be included in the guideline. A health economic evidence table will be completed, and it will be included in the health economic evidence profile. • If a study is rated as either 'Not applicable' or with 'Very serious limitations', then it will usually be excluded from the guideline. If it is excluded, then a health economic evidence table will not be completed, and it will not be included in the health economic evidence profile. • If a study is rated as 'Partially applicable', with 'Potentially serious limitations' or both then there is discretion over whether it should be included. **Where there is discretion** The health economist will make a decision based on the relative applicability and quality of the available evidence for that question, in discussion with the guideline committee if required. The ultimate aim is to include health economic studies that are helpful for decision-making in the context of the guideline and the current NHS setting. If several studies are considered of sufficiently high applicability and methodological quality that they could all be included, then the health economist, in discussion with the committee if required, may decide to include only the most applicable studies and to selectively exclude the remaining studies. All studies

	excluded on the basis of applicability or methodological limitations will be listed with explanation in the excluded health economic studies appendix below. The health economist will be guided by the following hierarchies. *Setting:* • UK NHS (most applicable). • OECD countries with predominantly public health insurance systems (for example, France, Germany, Sweden). • OECD countries with predominantly private health insurance systems (for example, Switzerland). • Studies set in non-OECD countries or in the USA will be excluded before being assessed for applicability and methodological limitations. *Health economic study type:* • Cost–utility analysis (most applicable). • Other type of full economic evaluation (cost–benefit analysis, cost-effectiveness analysis, cost–consequences analysis). • Comparative cost analysis. • Non-comparative cost analyses including cost-of-illness studies will be excluded before being assessed for applicability and methodological limitations. *Year of analysis:* • The more recent the study, the more applicable it will be. • Studies published in 2007 or later (including any such studies included in the previous guideline(s)) but that depend on unit costs and resource data entirely or predominantly from before 2007 will be rated as 'Not applicable'. • Studies published before 2007 (including any such studies included in the previous guideline(s)) will be excluded before being assessed for applicability and methodological limitations. *Quality and relevance of effectiveness data used in the health economic analysis:* • The more closely the clinical effectiveness data used in the health economic analysis match with the outcomes of the studies included in the clinical review the more useful the analysis will be for decision-making in the guideline.

Appendix B Literature search strategies

The literature searches for this review are detailed below and complied with the methodology outlined in Developing NICE guidelines: the manual (2014)

For more information, please see the Methodology review published as part of the accompanying documents for this guideline.

B.1.1 Clinical search literature search strategy (quantitative)

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies as these concepts may not be indexed or described in the title or abstract and are therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Table 10: Database parameters, filters and limits applied

Database	Dates searched	Search filter used
Medline ALL (OVID)	**01-01-1946 - 03-05-2024**	Systematic reviews Randomised controlled trials Exclusions (animal studies, letters, comments, editorials, news, historical articles, anecdotes, case studies/reports) English language
Embase (OVID)	**01-01-1974 - 07-05-2024**	Systematic reviews Randomised controlled trials Exclusions (animal studies, letters, comments, editorials, case studies/reports, conference abstracts) English language
The Cochrane Library (Wiley)	Cochrane CDSR to 2024 Issue 5 of 12 Cochrane CENTRAL to 2024 Issue 5 of 12	
Epistemonikos (The Epistemonikos Foundation)	No date limits applied (searched 07/05/2024)	

Medline (Ovid) search terms

1	Accidental Falls/	28326
2	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*).ti,ab,kf.	602223

3	or/1-2	608724
4	exp "Treatment adherence and compliance"/	278113
5	(adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*).ti.	561346
6	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or "care giver*" or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) adj3 (adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*)).ab,kf.	514092
7	(refus* or reject* or veto* or declin* or defiance* or nonadheren* or "non adheren*" or nonconform* or "non conform*" or nonacceptanc* or "non acceptanc*" or noncomplianc* or "non complianc*" or nonrespons* or "non respons*" or dropout* or "drop out*" or unsustain* or discontinu* or (turn* adj3 down*)).ti.	86331
8	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or "care giver*" or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) adj3 (refus* or reject* or veto* or declin* or defiance* or nonadheren* or "non adheren*" or nonconform* or "non conform*" or nonacceptanc* or "non acceptanc*" or noncomplianc* or "non complianc*" or nonrespons* or "non respons*" or dropout* or "drop out*" or unsustain* or discontinu* or (turn* adj3 down*))).ab,kf.	114934
9	(patient* adj3 (role* or centre* or center* or program*)).ti,ab,kf.	124905
10	or/4-9	1458537
11	exp Motivation/	197165
12	(motivation* or (goal* adj3 setting)).ti,ab,kf.	127265
13	Motivational Interviewing/	2621
14	exp Social Support/	80607
15	((peer* or carer* or caregiver* or "care giver*" or famil* or social or communit*) adj3 (support* or guid* or advice or care or educat*)).ti,ab,kf.	221257
16	Reminder Systems/	3813
17	reminder*.ti,ab,kf.	16961
18	Consumer Health Information/ or Needs Assessment/ or Patient Education as Topic/ or Patient Education Handout/ or Health Communication/ or Information Dissemination/	149203
19	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or "care giver*" or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*)).ti,ab,kf.	585922

20	((patient* or inpatient* or outpatient*) adj3 (literature or leaflet* or booklet* or pamphlet*)).ti,ab,kf.	15467
21	((educat* or learn* or support* or training) adj3 (service* or literature or leaflet* or booklet* or pamphlet* or information* or manual* or brochure* or publication* or handout* or material* or program*)).ti,ab,kf.	252359
22	exp Internet/	99419
23	exp Cell Phone/	23174
24	exp Computers, Handheld/	13590
25	Mobile Applications/	12134
26	exp Telemedicine/	46463
27	Text Messaging/	4635
28	Medical Informatics Applications/	2552
29	Therapy, Computer-Assisted/	6979
30	(app or apps).ti,ab.	45725
31	(text adj3 (messag* or alert*)).ti,ab.	6760
32	(telemedicine* or telecom* or telehealth*).ti,ab.	36117
33	(online or web or internet or digital*).ti.	145483
34	((online or web or internet or digital*) adj3 (based or application* or intervention* or program* or therap*)).ab.	83656
35	(phone* or telephone* or smartphone* or cellphone* or smartwatch*).ti.	28196
36	((phone* or telephone* or smartphone* or cellphone* or smartwatch*) adj3 (based or application* or intervention* or program* or therap*)).ab.	17869
37	(mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental).ti.	9022
38	((mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental) adj3 (based or application* or intervention* or program* or therap*)).ab.	6305
39	(mobile* adj3 (based or application* or intervention* or device* or technolog*)).ti,ab.	23149
40	((virtual* or group* or "self direct*" or selfdirect* or multicomponent or "multi component*") adj3 (intervention* or program* or syllab* or meeting* or timetable* or "time table*" or appointment*)).ti,ab.	105927
41	or/11-40	1716469
42	3 and 10 and 41	4479
43	randomized controlled trial.pt.	607609
44	controlled clinical trial.pt.	95539
45	randomi#ed.ti,ab.	818872
46	placebo.ab.	245202
47	randomly.ti,ab.	426837

48	Clinical Trials as topic.sh.	201675
49	trial.ti.	301721
50	or/43-49	1635125
51	Meta-Analysis/	194040
52	exp Meta-Analysis as Topic/	29039
53	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.	295540
54	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.	394332
55	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.	56491
56	(search strategy or search criteria or systematic search or study selection or data extraction).ab.	88138
57	(search* adj4 literature).ab.	104330
58	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.	389628
59	cochrane.jw.	16669
60	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.	3981
61	or/51-60	737518
62	50 or 61	2200115
63	42 and 62	1216
64	letter/	1241596
65	editorial/	680347
66	news/	223235
67	exp historical article/	410260
68	Anecdotes as Topic/	4747
69	comment/	1029833
70	case report/	0
71	(letter or comment*).ti.	196191
72	or/64-71	2889132
73	randomized controlled trial/ or random*.ti,ab.	1615061
74	72 not 73	2863708
75	animals/ not humans/	5156703
76	exp Animals, Laboratory/	955966
77	exp Animal Experimentation/	10414
78	exp Models, Animal/	646323
79	exp Rodentia/	3584295

80	(rat or rats or mouse or mice or rodent*).ti.	1484703
81	or/74-80	8983909
82	63 not 81	1208
83	limit 82 to english language	1179

Embase (Ovid) search terms

1	falling/	51554
2	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*).ti,ab.	748052
3	or/1-2	767363
4	exp patient compliance/	196028
5	(adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*).ti.	657397
6	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or "care giver*" or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) adj3 (adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*)).ab,kf.	798330
7	(refus* or reject* or veto* or declin* or defiance* or nonadheren* or "non adheren*" or nonconform* or "non conform*" or nonacceptanc* or "non acceptanc*" or noncomplianc* or "non complianc*" or nonrespons* or "non respons*" or dropout* or "drop out*" or unsustain* or discontinu* or (turn* adj3 down*)).ti.	114593
8	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or "care giver*" or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) adj3 (refus* or reject* or veto* or declin* or defiance* or nonadheren* or "non adheren*" or nonconform* or "non conform*" or nonacceptanc* or "non acceptanc*" or noncomplianc* or "non complianc*" or nonrespons* or "non respons*" or dropout* or "drop out*" or unsustain* or discontinu* or (turn* adj3 down*))).ab,kf.	209771
9	(patient* adj3 (role* or centre* or center* or program*)).ti,ab,kf.	231391
10	or/4-9	1892524
11	exp motivation/	173349
12	(motivation* or (goal* adj3 setting)).ti,ab,kf.	151842
13	motivational interviewing/	7209
14	exp social support/	121558

15	caregiver support/	4869
16	((peer* or carer* or caregiver* or "care giver*" or famil* or social or communit*) adj3 (support* or guid* or advice or care or educat*)).ti,ab,kf.	285099
17	reminder system/	3145
18	reminder*.ti,ab,kf.	26410
19	consumer health information/ or needs assessment/ or patient education/ or medical information/ or information dissemination/	264078
20	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*)).ti,ab,kf.	879858
21	((patient* or inpatient* or outpatient*) adj3 (literature or leaflet* or booklet* or pamphlet*)).ti,ab,kf.	26520
22	((educat* or learn* or support*) adj3 (service* or literature or leaflet* or booklet* or pamphlet* or information* or manual* or brochure* or publication* or handout* or material* or program*)).ti,ab,kf.	252025
23	exp mobile application/	27210
24	internet/	125369
25	exp mobile phone/	49984
26	computer assisted therapy/	4871
27	personal digital assistant/	1858
28	exp telemedicine/	74435
29	(telemedicine* or telecom* or telehealth*).ti,ab.	46526
30	text messaging/	8033
31	(text adj3 (messag* or alert*)).ti,ab.	8754
32	(app or apps).ti,ab.	62102
33	(online or web or internet or digital*).ti.	166233
34	((online or web or internet or digital*) adj3 (based or application* or intervention* or program* or therap*)).ab.	111543
35	(phone* or telephone* or smartphone* or cellphone* or smartwatch*).ti.	33344
36	((phone* or telephone* or smartphone* or cellphone* or smartwatch*) adj3 (based or application* or intervention* or program* or therap*)).ab.	23692
37	(mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental).ti.	9847
38	((mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental) adj3 (based or application* or intervention* or program* or therap*)).ab.	6855
39	(mobile* adj3 (based or application* or intervention* or device* or technolog*)).ti,ab.	28302

40	((virtual* or group* or "self direct*" or selfdirect* or multicomponent or "multi component*") adj3 (intervention* or program* or syllab* or meeting* or timetable* or "time table*" or appointment*)).ti,ab.	145892
41	or/11-40	2219075
42	3 and 10 and 41	7296
43	random*.ti,ab.	2026753
44	factorial*.ti,ab.	48596
45	(crossover* or cross over*).ti,ab.	128508
46	((doubl* or singl*) adj blind*).ti,ab.	279271
47	(assign* or allocat* or volunteer* or placebo*).ti,ab.	1292790
48	crossover procedure/	76729
49	single blind procedure/	53339
50	randomized controlled trial/	805125
51	double blind procedure/	215384
52	or/43-51	2988662
53	systematic review/	450106
54	meta-analysis/	304537
55	(meta analy* or metanaly* or metaanaly* or meta regression).ti,ab.	375191
56	((systematic* or evidence*) adj3 (review* or overview*)).ti,ab.	473249
57	(reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab.	69396
58	(search strategy or search criteria or systematic search or study selection or data extraction).ab.	105418
59	(search* adj4 literature).ab.	130769
60	(medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab.	474102
61	cochrane.jw.	25022
62	((multiple treatment* or indirect or mixed) adj2 comparison*).ti,ab.	7389
63	or/53-62	978432
64	52 or 63	3675788
65	42 and 64	1908
66	letter.pt. or letter/	1313390
67	note.pt.	974913
68	editorial.pt.	794403
69	(conference abstract or conference paper).pt.	5803177
70	case report/ or case study/	3041122

71	(letter or comment*).ti.	241633
72	or/66-71	11244257
73	randomized controlled trial/ or random*.ti,ab.	2142753
74	72 not 73	10712223
75	animal/ not human/	1211453
76	nonhuman/	7600261
77	exp Animal Experiment/	3137748
78	exp Experimental Animal/	839464
79	animal model/	1757816
80	exp Rodent/	4096394
81	(rat or rats or mouse or mice or rodent*).ti.	1660664
82	or/74-81	19128936
83	65 not 82	1592
84	limit 83 to english language	1557

Cochrane CDSR and CENTRAL search terms

#1	[mh ^"Accidental Falls"]	1937
#2	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*):ti,ab,kw	51109
#3	(OR #1-#2)	51109
#4	[mh "Treatment adherence and compliance"]	37088
#5	(adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*):ti	60231
#6	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or (care NEXT giver*) or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or "next of kin" or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) near/3 (adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*)):ab,kw	165824
#7	((refus* or reject* or veto* or declin* or defiance* or nonadheren* or (non NEXT adheren*) or nonconform* or (non NEXT conform*) or nonacceptanc* or (non NEXT acceptanc*) or noncomplianc* or (non NEXT complianc*) or nonrespons* or (non NEXT respons*) or dropout* or (drop NEXT out*) or unsustain* or discontinu* or (turn* near/3 down*))):ti	7259

#8	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or (care NEXT giver*) or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or "next of kin" or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) near/3 (refus* or reject* or veto* or declin* or defiance* or nonadheren* or (non NEXT adheren*) or nonconform* or (non NEXT conform*) or nonacceptanc* or (non NEXT acceptanc*) or noncomplianc* or (non NEXT complianc*) or nonrespons* or (non NEXT respons*) or dropout* or (drop NEXT out*) or unsustain* or discontinu* or (turn* near/3 down*))):ab,kw	39041
#9	(patient* near/3 (role* or centre* or center* or program*)):ti,ab,kw	30558
#10	(OR #4-#9)	270633
#11	[mh Motivation]	12338
#12	(motivation* or (goal* near/3 setting)):ti,ab,kw	26483
#13	[mh ^"Motivational Interviewing"]	1347
#14	[mh "Social Support"]	4340
#15	((peer* or carer* or caregiver* or (care NEXT giver*) or famil* or social or communit*) near/3 (support* or guid* or advice or care or educat*)):ti,ab,kw	32316
#16	[mh ^"Reminder Systems"]	1116
#17	reminder*:ti,ab,kw	7535
#18	[mh ^"Consumer Health Information"] OR [mh ^"Needs Assessment"] OR [mh ^"Patient Education as Topic"] OR [mh ^"Patient Education Handout"] OR [mh ^"Health Communication"] OR [mh ^"Information Dissemination"]	11183
#19	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or (care NEXT giver*) or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or "next of kin" or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) near/3 (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*)):ti,ab,kw	113987
#20	((patient* or inpatient* or outpatient*) near/3 (literature or leaflet* or booklet* or pamphlet*)):ti,ab,kw	1645
#21	((educat* or learn* or support* or training) near/3 (service* or literature or leaflet* or booklet* or pamphlet* or information* or manual* or brochure* or publication* or handout* or material* or program*)):ti,ab,kw	48520
#22	[mh Internet]	6274
#23	[mh "Cell Phone"]	3194
#24	[mh "Computers, Handheld"]	1401
#25	[mh ^"Mobile Applications"]	1633
#26	[mh Telemedicine]	4346
#27	[mh ^"Text Messaging"]	1522
#28	[mh ^"Medical Informatics Applications"]	38
#29	[mh ^"Therapy, Computer-Assisted"]	1481

#30	(app or apps):ti,ab	10361
#31	(text near/3 (messag* or alert*)):ti,ab	5425
#32	(telemedicine* or telecom* or telehealth*):ti,ab	5027
#33	(online or web or internet or digital*):ti	17868
#34	((online or web or internet or digital*) near/3 (based or application* or intervention* or program* or therap*)):ab	20618
#35	(phone* or telephone* or smartphone* or cellphone* or smartwatch*):ti	7130
#36	((phone* or telephone* or smartphone* or cellphone* or smartwatch*) near/3 (based or application* or intervention* or program* or therap*)):ab	9460
#37	(mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental):ti	2963
#38	((mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental) near/3 (based or application* or intervention* or program* or therap*)):ab	31081
#39	(mobile* near/3 (based or application* or intervention* or device* or technolog*)):ti,ab	6867
#40	((virtual* or group* or (self NEXT direct*) or selfdirect* or multicomponent or (multi NEXT component*)) near/3 (intervention* or program* or syllab* or meeting* or timetable* or (time NEXT table*) or appointment*)):ti,ab	176511
#41	(OR #11-#40)	361710
#42	#3 and #10 and #41	2930
#43	((clinicaltrials or trialsearch* or trial-registry or trials-registry or clinicalstudies or trialsregister* or trialregister* or trial-number* or studyregister* or study-register* or controlled-trials-com or current-controlled-trial or AMCTR or ANZCTR or ChiCTR* or CRiS or CTIS or CTRI* or DRKS* or EU-CTR* or EUCTR* or EUDRACT* or ICTRP or IRCT* or JAPIC* or JMCTR* or JRCT or ISRCTN* or LBCTR* or NTR* or ReBec* or REPEC* or RPCEC* or SLCTR or TCTR* or UMIN*):so or (ctgov or ictrp)):an	496405
#44	#42 NOT #43	1587
#45	conference:pt	233734
#46	#44 NOT #45	1225

Epistemonikos search terms

1	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*)

2	(adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*) OR ((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or (care AND giver*) or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or "next of kin" or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) AND (adher* or continu* or participat* or complian* or maintain* or sustain* or prolong* or perpetuat* or encourag* or responsiv* or acquiesc* or observance* or conform* or accept*)) OR ((refus* or reject* or veto* or declin* or defiance* or nonadheren* or (non AND adheren*) or nonconform* or (non AND conform*) or nonacceptanc* or (non AND acceptanc*) or noncomplianc* or (non AND complianc*) or nonrespons* or (non AND respons*) or dropout* or (drop AND out*) or unsustain* or discontinu* or (turn* AND down*))) OR ((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or (care AND giver*) or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or "next of kin" or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother* or treatment* or intervention* or program* or therap*) AND (refus* or reject* or veto* or declin* or defiance* or nonadheren* or (non AND adheren*) or nonconform* or (non AND conform*) or nonacceptanc* or (non AND acceptanc*) or noncomplianc* or (non AND complianc*) or nonrespons* or (non AND respons*) or dropout* or (drop AND out*) or unsustain* or discontinu* or (turn* AND down*))) OR (patient* AND (role* or centre* or center* or program*))
3	(motivation* or (goal* AND setting)) OR ((peer* or carer* or caregiver* or (care AND giver*) or famil* or social or communit*) AND (support* or guid* or advice or care or educat*)) OR reminder* OR ((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or (care AND giver*) or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or "next of kin" or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) AND (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*)) OR ((patient* or inpatient* or outpatient*) AND (literature or leaflet* or booklet* or pamphlet*)) OR ((educat* or learn* or support* or training) AND (service* or literature or leaflet* or booklet* or pamphlet* or information* or manual* or brochure* or publication* or handout* or material* or program*)) OR (app or apps) OR (text AND (messag* or alert*)) OR (telemedicine* or telecom* or telehealth*) OR (online or web or internet or digital*) OR ((online or web or internet or digital*) AND (based or application* or intervention* or program* or therap*)) OR (phone* or telephone* or smartphone* or cellphone* or smartwatch*) OR ((phone* or telephone* or smartphone* or cellphone* or smartwatch*) AND (based or application* or intervention* or program* or therap*)) OR (mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental) OR ((mobile health or mhealth or m-health or ehealth or e-health or emental or e-mental) AND (based or application* or intervention* or program* or therap*)) OR (mobile* AND (based or application* or intervention* or device* or technolog*)) OR ((virtual* or group* or (self AND direct*) or selfdirect* or multicomponent or (multi AND component*)) AND (intervention* or program* or syllab* or meeting* or timetable* or (time AND table*) or appointment*))
4	1 AND 2 AND 3

B.1.2 Clinical search literature search strategy (qualitative)

Searches were constructed using a PICO framework where population (P) terms were combined with Intervention (I) and in some cases Comparison (C) terms. Outcomes (O) are rarely used in search strategies as these concepts may not be indexed or described in the title or abstract and are therefore difficult to retrieve. Search filters were applied to the search where appropriate.

Q1.1 What are the education and information needs (regarding prevention) of people (and their families and carers) after being identified and assessed to be at risk of falls, or had a fall?

Table 11: Database parameters, filters and limits applied

Database	Dates searched	Search filter used
Medline ALL (OVID)	**01-01-1946 - 03-05-2024**	Qualitative studies Exclusions (child studies, animal studies) English language
Embase (OVID)	**01-01-1974 - 03-05-2024**	Qualitative studies Exclusions (child studies, animal studies) English language
CINAHL	**01-01-1981 - 03-05-2024**	Qualitative studies
PsychINFO (Ovid)	**01-01-1967 - 03-05-2024**	Qualitative studies Exclusions (child studies, animal studies, letters, case reports) English language

Medline (Ovid) search terms

1	Accidental Falls/
2	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*).ti,ab.
3	or/1-2
4	letter/
5	editorial/
6	news/
7	exp historical article/
8	Anecdotes as Topic/
9	comment/
10	case reports/
11	(letter or comment*).ti.
12	or/4-11
13	randomized controlled trial/ or random*.ti,ab.
14	12 not 13

15	animals/ not humans/
16	exp Animals, Laboratory/
17	exp Animal Experimentation/
18	exp Models, Animal/
19	exp Rodentia/
20	(rat or rats or mouse or mice or rodent*).ti.
21	or/14-20
22	3 not 21
23	limit 22 to english language
24	(prevent* or avoid* or (risk adj3 (lower* or reduc* or manag*))).ti,ab.
25	exp aged/
26	Geriatrics/
27	(senior or seniors or elder* or old* or aged or aging or ageing or geriatric* or gerontolog*).ti,ab,kf.
28	(quinquagenarian or sexagenarian or septuagenarian or octogenarian or nonagenarian or centenarian).ti,ab,kf.
29	or/24-28
30	23 and 29
31	exp Patients/ or exp Family/ or Caregivers/
32	Consumer Health Information/ or Needs Assessment/ or Patient Education as Topic/ or Patient Education Handout/ or Health Communication/ or Information Dissemination/
33	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*)).ti,ab,kf.
34	((information* or educat*) adj3 (need* or requirement* or support* or seek* or access* or disseminat* or barrier* or service*)).ti,ab,kf.
35	(support* adj3 (need* or requirement* or assess* or seek* or access* or barrier* or service*)).ti,ab,kf.
36	"Patient Acceptance of Health Care"/ or exp Patient Satisfaction/

37	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (belief* or attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or experience* or thought* or feeling* or opinion* or feedback*)).ti,ab,kf.
38	or/31-37
39	30 and 38
40	Qualitative research/ or Narration/ or exp Interviews as Topic/ or exp "Surveys and Questionnaires"/ or Health care surveys/
41	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*).ti,ab.
42	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic or phenomenolog* or grounded theory or constant compar* or (thematic* adj3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*).ti,ab.
43	or/40-42
44	39 and 43
45	(exp child/ or exp pediatrics/) not (exp adult/ or exp adolescent/)
46	44 not 45

Embase (Ovid) search terms

1	falling/
2	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*).ti,ab.
3	or/1-2
4	letter.pt. or letter/
5	note.pt.
6	editorial.pt.
7	case report/ or case study/
8	(letter or comment*).ti.
9	(conference abstract or conference paper).pt.
10	or/4-9
11	randomized controlled trial/ or random*.ti,ab.

12	10 not 11
13	animal/ not human/
14	nonhuman/
15	exp Animal Experiment/
16	exp Experimental Animal/
17	animal model/
18	exp Rodent/
19	(rat or rats or mouse or mice or rodent*).ti.
20	or/12-19
21	3 not 20
22	limit 21 to english language
23	(prevent* or avoid* or (risk adj3 (lower* or reduc* or manag*))).ti,ab.
24	accident prevention/
25	exp aged/
26	geriatrics/
27	(senior*1 or elder* or old* or aged or ag?ing or geriatric* or gerontolog*).ti,ab,kf.
28	(quinquagenarian or sexagenarian or septuagenarian or octogenarian or nonagenarian or centenarian).ti,ab,kf.
29	or/23-28
30	22 and 29
31	patient/ or family/ or caregivers/
32	consumer health information/ or needs assessment/ or communication barrier/ or patient education/ or medical information/ or information dissemination/
33	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*)).ti,ab,kf.
34	((information* or educat*) adj3 (need* or requirement* or support* or seek* or access* or disseminat* or barrier* or service*)).ti,ab,kf.
35	(support* adj3 (need* or requirement* or assess* or seek* or access* or barrier* or service*)).ti,ab,kf.
36	patient preference/ or patient satisfaction/ or consumer attitude/ or patient attitude/
37	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (belief* or attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or experience* or thought* or feeling* or opinion* or feedback*)).ti,ab,kf.

38	or/31-37
39	30 and 38
40	health survey/ or exp questionnaire/ or exp interview/ or qualitative research/ or narrative/
41	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*).ti,ab.
42	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic or phenomenolog* or grounded theory or constant compar* or (thematic* adj3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*).ti,ab.
43	or/40-42
44	39 and 43
45	(exp child/ or exp pediatrics/) not (exp adult/ or exp adolescent/)
46	44 not 45

CINAHL

S1	(MH "Accidental Falls")
S2	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*)
S3	S1 OR S2
S4	(MH Patients+) OR (MH Family+) OR (MH Caregivers)
S5	(MH "Consumer Health Information") OR (MH "Needs Assessment") OR (MH "Patient Education as Topic") OR (MH "Patient Education Handout") OR (MH "Health Communication") OR (MH "Information Dissemination")
S6	TI (((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) AND (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*))) OR AB (((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) AND (information* or advice or advis* or need* or requirement* or support* or access* or service* or educat* or learn* or teach* or train*)))

S7	TI (((information* or educat*) AND (need* or requirement* or support* or seek* or access* or disseminat* or barrier* or service*))) OR AB (((information* or educat*) AND (need* or requirement* or support* or seek* or access* or disseminat* or barrier* or service*)))
S8	TI ((support* AND (need* or requirement* or assess* or seek* or access* or barrier* or service*))) OR AB ((support* AND (need* or requirement* or assess* or seek* or access* or barrier* or service*)))
S9	(MH "Patient Satisfaction+")
S10	TI (((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) AND (belief* or attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or experience* or opinion* or thought* or feeling* or preference* or feedback*))) OR AB (((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) AND (belief* or attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or experience* or thought* or feeling* or opinion* or preference* or feedback*)))
S11	S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10
S12	S3 AND S11
S13	(MH "Qualitative Studies+")
S14	(MH "Qualitative Validity+")
S15	(MH "Interviews+") OR (MH "Focus Groups") OR (MH "Surveys") OR (MH "Questionnaires+")
S16	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*)
S17	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic

	or phenomenolog* or grounded theory or constant compar* or (thematic* N3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*)
S18	S13 OR S14 OR S15 OR S16 OR S17
S19	S12 AND S18
S20	(prevent* or avoid* or (risk N3 (lower* or reduc* or manag*)))
S21	(MH "Aged")
S22	(senior or seniors or elder* or old* or aged or aging or ageing or geriatric* or gerontolog*)
S23	(quinquagenarian or sexagenarian or septuagenarian or octogenarian or nonagenarian or centenarian)
S24	S20 OR S21 OR S22 OR S23
S25	S19 AND S24

PsychINFO search terms

1	falls/
2	(fall or falls or falling or faller* or fallen or slip* or trip* or collapse*).ti,ab.
3	or/1-2
4	Letter/
5	Case report/
6	exp rodents/
7	or/4-6

8	3 not 7
9	qualitative methods/ or exp interviews/ or exp questionnaires/
10	(qualitative or interview* or focus group* or theme* or questionnaire* or survey*).ti,ab.
11	(metasynthes* or meta-synthes* or metasummar* or meta-summar* or metastud* or meta-stud* or metathem* or meta-them* or ethno* or emic or etic or phenomenolog* or grounded theory or constant compar* or (thematic* adj3 analys*) or theoretical sampl* or purposive sampl* or hermeneutic* or heidegger* or husserl* or colaizzi* or van kaam* or van manen* or giorgi* or glaser* or strauss* or ricoeur* or spiegelberg* or merleau*).ti,ab.
12	or/9-11
13	exp Caregivers/ or Client Satisfaction/ or Health Information/ or exp Needs Assessment/ or Client Attitudes/ or Client Education/ or communication barriers/
14	((educat* or learn* or support* or teach* or train*) adj3 (service* or information* or material* or virtual* or app or apps or blog* or booklet* or brochure* or dvd* or elearn* or e-learn* or email* or e-mail* or e mail* or facebook or facetime or face time or forum* or handout* or hand-out* or hand out* or helpline* or hotline* or internet* or ipad* or iphone* or leaflet* or online or magazine* or mobile phone* or newsletter* or pamphlet* or palm pilot* or personal digital assistant* or pocket pc* or podcast* or poster? or skype* or smartphone* or smart phone* or social media or social network* or sms or text messag* or twitter or tweet* or video* or web* or wiki* or youtube* or manual* or publication* or literature or computer* or interactive or telephone* or phone*)).ti,ab.
15	((patient* or carer* or client* or user* or consumer* or caregiver* care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or patner* or guardian* or inpatient* or outpatient* or in patient* or out patient* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (belief* or attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or inform* or experience or experiences or opinion* or preference* or focus group* or service* or information* or material* or virtual* or app or apps or blog* or booklet* or brochure* or dvd* or elearn* or e-learn* or email* or e-mail* or e mail* or facebook or facetime or face time or forum* or handout* or hand-out* or hand out* or helpline* or hotline* or internet* or ipad* or iphone* or leaflet* or online or magazine* or mobile phone* or newsletter* or pamphlet* or palm pilot* or personal digital assistant* or pocket pc* or podcast* or poster? or skype* or smartphone* or smart phone* or social media or social network* or sms or text messag* or twitter or tweet* or video* or web* or wiki* or youtube* or manual* or publication* or literature or computer* or interactive or telephone* or phone*)).ti,ab.
16	((information* or educat*) adj3 (need* or requirement* or support* or seek* or access* or disseminat* or barrier* or service*)).ti,ab.
17	(support* adj3 (need* or requirement* or assess* or seek* or access* or barrier* or service*)).ti,ab.

18	((patient* or inpatient* or outpatient* or carer* or client* or user* or customer* or consumer* or caregiver* or care giver* or famil* or parent* or father* or mother* or spouse* or wife or wives or husband* or next of kin or significant other* or partner* or guardian* or relative* or sibling* or sister* or brother* or grandparent* or grandfather* or grandmother*) adj3 (belief* or attitud* or priorit* or perception* or preferen* or expectation* or choice* or perspective* or view* or satisfact* or experience* or thought* or feeling* or opinion* or feedback*)).ti,ab.
19	or/13-18
20	8 and 12
21	19 and 20
22	limit 21 to (human and english language)
23	(exp child/ or exp pediatrics/ or exp infant/) not (exp adolescent/ or exp adult/ or exp middle age/ or exp aged/)
24	22 not 23

B.2 Health Economics literature search strategy

Health economic evidence was identified by applying economic evaluation and quality of life filters to the clinical literature search strategy in Medline and Embase. The following databases were also searched: NHS Economic Evaluation Database (NHS EED - this ceased to be updated after 31st March 2015), Health Technology Assessment database (HTA - this ceased to be updated from 31st March 2018) and The International Network of Agencies for Health Technology Assessment (INAHTA)

Table 12: Database parameters, filters and limits applied

Database	Dates searched	Search filters and limits applied
Medline (OVID)	Health Economics 1 January 2014 – 8 May 2024	Health economics studies Quality of Life studies Exclusions (animal studies) English language
	Quality of Life 1 January 2004 to – 8 May 2024	
Embase (OVID)	Health Economics 1 January 2014 – 8 May 2024	Health economics studies Quality of Life studies Exclusions (animal studies) English language
	Quality of Life 1 January 2004 to – 8 May 2024	
NHS Economic Evaluation Database (NHS EED)	Inception – 31 March 2015 (database no longer updated as of this date)	

Database	Dates searched	Search filters and limits applied
(Centre for Research and Dissemination - CRD)		
Health Technology Assessment Database (HTA) (Centre for Research and Dissemination – CRD)	Inception – 31 March 2018 (database no longer updated as of this date)	
The International Network of Agencies for Health Technology Assessment (INAHTA)	Inception - 8 May 2024	English language

Medline (Ovid) search terms

1	Accidental Falls/
2	(fall or falls or falling or faller* or fallen or slip* or trip or trips or tripped or tripping or tumbl*).ti,ab.
3	or/1-2
4	letter/
5	editorial/
6	news/
7	exp historical article/
8	Anecdotes as Topic/
9	comment/
10	case report/
11	(letter or comment*).ti.
12	or/4-11
13	randomized controlled trial/ or random*.ti,ab.
14	12 not 13
15	animals/ not humans/
16	exp Animals, Laboratory/
17	exp Animal Experimentation/
18	exp Models, Animal/
19	exp Rodentia/
20	(rat or rats or mouse or mice or rodent*).ti.
21	or/14-20
22	3 not 21
23	limit 22 to english language

24	limit 23 to yr="2004 -Current"
25	23 and 24
26	Economics/
27	Value of life/
28	exp "Costs and Cost Analysis"/
29	exp Economics, Hospital/
30	exp Economics, Medical/
31	Economics, Nursing/
32	Economics, Pharmaceutical/
33	exp "Fees and Charges"/
34	exp Budgets/
35	budget*.ti,ab.
36	cost*.ti.
37	(economic* or pharmaco?economic*).ti.
38	(price* or pricing*).ti,ab.
39	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
40	(financ* or fee or fees).ti,ab.
41	(value adj2 (money or monetary)).ti,ab.
42	or/26-41
43	quality-adjusted life years/
44	sickness impact profile/
45	(quality adj2 (wellbeing or well being)).ti,ab.
46	sickness impact profile.ti,ab.
47	disability adjusted life.ti,ab.
48	(qal* or qtime* or qwb* or daly*).ti,ab.
49	(euroqol* or eq5d* or eq 5*).ti,ab.
50	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
51	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
52	(hui or hui1 or hui2 or hui3).ti,ab.
53	(health* year* equivalent* or hye or hyes).ti,ab.
54	discrete choice*.ti,ab.
55	rosser.ti,ab.
56	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.

57	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
58	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.
59	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
60	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
61	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
62	or/43-61
63	25 and 42
64	limit 63 to yr="2014 -Current"
65	25 and 62

Embase (Ovid) search terms

1	falling/
2	(fall or falls or falling or faller* or fallen or slip* or trip or trips or tripped or tripping or tumbl*).ti,ab.
3	or/1-2
4	letter.pt. or letter/
5	note.pt.
6	editorial.pt.
7	case report/ or case study/
8	(letter or comment*).ti.
9	(conference abstract or conference paper).pt.
10	or/4-9
11	randomized controlled trial/ or random*.ti,ab.
12	10 not 11
13	animal/ not human/
14	nonhuman/
15	exp Animal Experiment/
16	exp Experimental Animal/
17	animal model/
18	exp Rodent/
19	(rat or rats or mouse or mice or rodent*).ti.
20	or/12-19
21	3 not 20
22	limit 21 to english language

23	limit 22 to yr="2004 -Current"
24	health economics/
25	exp economic evaluation/
26	exp health care cost/
27	exp fee/
28	budget/
29	funding/
30	budget*.ti,ab.
31	cost*.ti.
32	(economic* or pharmaco?economic*).ti.
33	(price* or pricing*).ti,ab.
34	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
35	(financ* or fee or fees).ti,ab.
36	(value adj2 (money or monetary)).ti,ab.
37	or/24-36
38	quality adjusted life year/
39	"quality of life index"/
40	short form 12/ or short form 20/ or short form 36/ or short form 8/
41	sickness impact profile/
42	(quality adj2 (wellbeing or well being)).ti,ab.
43	sickness impact profile.ti,ab.
44	disability adjusted life.ti,ab.
45	(qal* or qtime* or qwb* or daly*).ti,ab.
46	(euroqol* or eq5d* or eq 5*).ti,ab.
47	(qol* or hql* or hqol* or h qol* or hrqol* or hr qol*).ti,ab.
48	(health utility* or utility score* or disutilit* or utility value*).ti,ab.
49	(hui or hui1 or hui2 or hui3).ti,ab.
50	(health* year* equivalent* or hye or hyes).ti,ab.
51	discrete choice*.ti,ab.
52	rosser.ti,ab.
53	(willingness to pay or time tradeoff or time trade off or tto or standard gamble*).ti,ab.
54	(sf36* or sf 36* or short form 36* or shortform 36* or shortform36*).ti,ab.
55	(sf20 or sf 20 or short form 20 or shortform 20 or shortform20).ti,ab.

56	(sf12* or sf 12* or short form 12* or shortform 12* or shortform12*).ti,ab.
57	(sf8* or sf 8* or short form 8* or shortform 8* or shortform8*).ti,ab.
58	(sf6* or sf 6* or short form 6* or shortform 6* or shortform6*).ti,ab.
59	or/38-58
60	23 and 37
61	limit 60 to yr="2014 -Current"
62	23 and 59

NHS EED and HTA (CRD) search terms

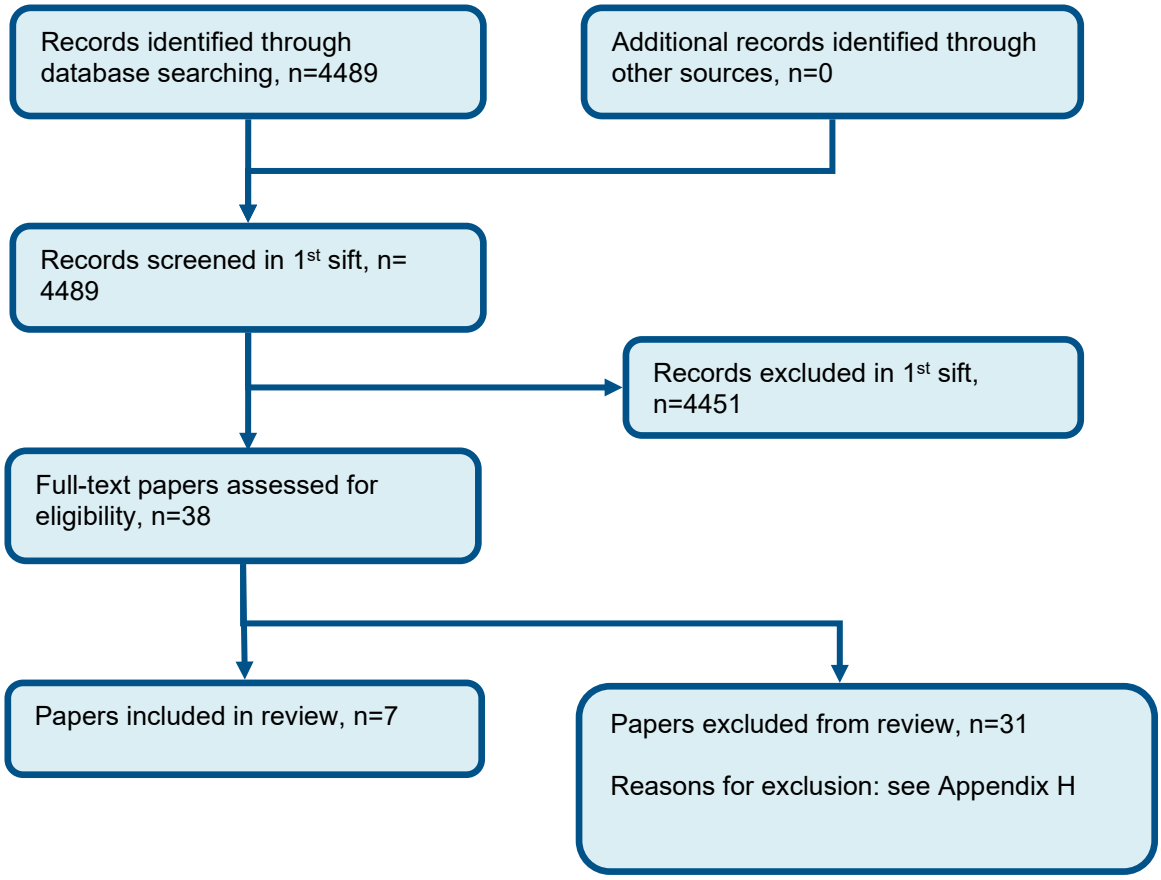
1	MeSH DESCRIPTOR Accidental Falls EXPLODE ALL TREES
2	((fall or falls or falling or faller* or fallen or slip* or trip or trips or tripped or tripping or tumbl*))
3	#1 OR #2
4	(#3) IN NHSEED
5	(#3) IN HTA

INAHTA search terms

1	("Accidental Falls"[mh]) OR (fall or falls or falling or faller* or fallen or slip* or trip or trips or tripped or tripping or tumbl*)
2	limit to english language
3	2004 - current

Appendix C Effectiveness evidence study selection

Figure 1: Flow chart of clinical study selection for the review of What are the most effective methods for maximising participation, adherence and continuation of falls prevention interventions?



Appendix D Effectiveness evidence

Arkkukangas, 2019

Bibliographic Reference	Arkkukangas, Marina; Soderlund, Anne; Eriksson, Staffan; Johansson, Ann-Christin; Fall Preventive Exercise With or Without Behavior Change Support for Community-Dwelling Older Adults: A Randomized Controlled Trial With Short-Term Follow-up.; Journal of geriatric physical therapy (2001); 2019; vol. 42 (no. 1); 9-17 12-month follow-up data from: Tuvemo Johnson, S., Anens, E., Johansson, A.-C., & Hellström, K. The Otago Exercise Program With or Without Motivational Interviewing for Community-Dwelling Older Adults: A 12-Month Follow-Up of a Randomized, Controlled Trial. Journal of Applied Gerontology, (2021); 40(3), 289-299

Study details

Secondary publication of another included study- see primary study for details	NA
Other publications associated with this study included in review	Arkkukangas, Marina; Johnson, Susanna Tuvemo; Hellstrom, Karin; Anens, Elisabeth; Tonkonogi, Michail; Larsson, Ulf. Fall Prevention Exercises With or Without Behavior Change Support for Community-Dwelling Older Adults: A Two-Year Follow-Up of a Randomized Controlled Trial. Journal of aging and physical activity; 2019; vol. 28 (no. 1); 34-41 No data extracted from this publication due to missing data regarding adherence.
Trial name / registration number	NCT01778972
Study type	Randomised controlled trial (RCT)

Study location	Sweden
Study setting	Three communities in Central Sweden
Study dates	October 2012 - May 2015
Sources of funding	Supported by The National Swedish Board of Health and Welfare, Grants for the County of Västmanland. Regional Research Fund for Uppsala and Örebro region, Sweden. Research and Development Department in the Community of Eskilstuna, Sweden
Inclusion criteria	75 years or older Able to walk independently. Able to understand written and oral information in Swedish
Exclusion criteria	Score of <25 on the Mini-Mental State Examination Ongoing regular physical therapy treatment Receiving terminal care
Recruitment / selection of participants	Care managers, occupational therapists, and physiotherapists collaborated to recruit participants who had contacted health centres or the municipality to obtain walking aids or home care
Intervention(s)	**Exercise (Otago Exercise Programme)** The Otago Exercise Programme (OEP) is a home-based exercise program designed to improve strength, balance, and endurance. With the support of the PT, the level of difficulty of the individually tailored exercise program was increased successively during the 12 weeks. To ensure the safety and intensity of the program, the PT increased and supervised the exercise closely during the 5 home visits. The exercise was estimated to take 30 minutes and was prescribed at a frequency of 3 times weekly. Ankle cuff weights were used according to the OEP protocol. Walks were recommended for the days between the exercise days. Exercise and walks were reported in the exercise diary by the participant. Each session with the PT was estimated to take 1 hour. **Exercise plus Psychological Intervention (Otago Exercise Programme plus motivational interviewing)**

	Motivational interviewing (MI) was combined with the OEP to follow the participant's motivation to change regarding exercise. The session began with MI, open-ended questions, affirmations, reflective listening and summaries, a collaborative conversation to strengthen and mobilize the participants' inner resources. The session then proceeded to discussion and a decision of the individual setup regarding the OEP. The sessions aimed to keep a flexible intervention tailored to the participant's needs and at the same time keeping the standardized structure of the OEP. Each session was calculated to last approximately 1 hour, equal to the OEP group. **Concomitant interventions:** All participants received a pamphlet with general safety recommendations for older adults, including fall prevention recommendations which was standard care at the time in the 3 communities
Population subgroups	None
Comparator	Participants in the usual care/control arm received the same pamphlet as the intervention arms, containing general safety recommendations for older adults, including fall prevention recommendations, which was standard care at the time in the 3 communities
Number of participants	175 randomised 61 allocated to exercise, 54 completed. 58 allocated to multiple component intervention, 52 completed. 56 allocated to usual care/control, 55 completed
Duration of follow-up	12 weeks 12-month data available from separate publication (Tuvemo Johnson 2021) for number of fallers and number of falls
Indirectness	None
Additional comments	Per protocol analysis including only participants who completed the 12-week follow-up and were adherent to exercise protocols. Exercise arm used as the control in the analysis.

Study arms

Exercise (N = 61)

Multiple Component Intervention (N = 58)

Usual care/control (N = 56)

Characteristics

Arm-level characteristics

Characteristic	**Exercise (N = 61)**	**Multiple Component Intervention (N = 58)**	**Usual care/control (N = 56)**
% Female Sample size	n = 41; % = 67	n = 40; % = 69	n = 41; % = 73
Mean age (SD) Mean (SD)	83 (5)	84 (4.1)	82 (4.7)
Falls in the past year Sample size	n = 24; % = 39	n = 28; % = 49	n = 21; % = 37
Short Physical Performance Battery Mean (SD)	7.9 (2.4)	7.7 (2.5)	7.5 (2.5)

Outcomes

Study timepoints

12 week

Outcomes

Outcome	Exercise, 12-week, N = 61	Multiple Component Intervention, 12-week, N = 58	Usual care/control, 12-week, N = 56
Number of falls No of events	n = 19	n = 38	n = 17
Adherence to exercise (%) Nominal	42	42	NR
Exercise accomplished twice a week (%) Nominal	77	84	NR
Walking frequency twice a week (%) Nominal	67	70	NR
Walking frequency 4 times a week (%) Nominal	21	28	NR

Study timepoints

12 months (from Tuvemo Johnson 2021)

Outcome	Exercise, N = 61	Multiple Component Intervention, N = 58	Usual care/control, N = 56
Number of falls No of events	n = 70	n = 79	n = 36
Number of fallers No of events	n = 22	n = 33	n = 19

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Outcomes-Number of falls – No of Events-Exercise-Multiple Component Intervention-Usual care/control-t12

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(22% adherence to protocol-specified physical activity levels and no information on method used to impute missing data)*
Overall bias and Directness	Overall Directness	Directly applicable

Audsley, 2020

Bibliographic Reference	Audsley, Sarah; Kendrick, Denise; Logan, Pip; Jones, Matthew; Orton, Elizabeth; A randomised feasibility study assessing an intervention to keep adults physically active after falls management exercise programmes end.; Pilot and feasibility studies; 2020; vol. 6; 37

Study details

Secondary publication of another included study- see primary study for details	NA
Other publications associated with this study included in review	NA
Trial name / registration number	NCT03824015
Study type	Randomised controlled trial (RCT)
Study location	UK
Study setting	Community setting
Study dates	January 2017 - February 2018
Sources of funding	University of Nottingham and the National Institute for Health Research School of Primary Care Research
Inclusion criteria	NR
Exclusion criteria	NR
Recruitment / selection of participants	Participants were recruited from the FAME programme. Participants previously participated in the FAME programme.

Intervention(s)	KAPA Participants received 6 sessions of motivational interviewing and behavioural change techniques with the aim to keep active. Sessions were in group settings in community centres and lasted 60-90 minutes each for 6 months. Participants also received a pedometer, and exercise instructions and diaries. Participants received the intervention by telephone if they were unable to attend sessions.
Population subgroups	None
Comparator	Usual care Weekly self-funded FAME classes.
Number of participants	N=45
Duration of follow-up	6 months
Indirectness	None

Study arms

Intervention (N = 16)

Usual care/control (N = 29)

Characteristics

Arm-level characteristics

Characteristic	Intervention (N = 16)	Usual care/control (N = 29)
% Female Nominal	13	20
Mean age (SD) Mean (SD)	76.9 (7)	73.8 (6.4)
White British Sample size	n = 15	n = 29
Asian Indian Sample size	n = 1	n = 0

Outcomes

Outcome

Outcome	Intervention, N = 16	Usual care/control, , N = 29
Achieved 0-149 minutes of moderate vigorous physical activity No of events	n = 6	n = 12
Achieved more than 150 minutes of moderate vigorous physical activity No of events	n = 10	n = 13

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Outcome-Achieved0-149minutesofmoderatevigourousphysicalactivity-NoOfEvents-Intervention -Usual care/control

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(Participants and assessors were not blinded to intervention received)*
Overall bias and Directness	Overall Directness	Directly applicable

Cattaneo, 2019

Bibliographic Reference	Cattaneo, Davide; Gervasoni, Elisa; Pupillo, Elisabetta; Bianchi, Elisa; Aprile, Irene; Imbimbo, Isabella; Russo, Rita; Cruciani, Arianna; Turolla, Andrea; Jonsdottir, Johanna; Agostini, Michela; Beghi, Ettore; Educational and Exercise Intervention to Prevent Falls and Improve Participation in Subjects with Neurological Conditions: The NEUROFALL Randomized Controlled Trial.; Frontiers in neurology; 2019; vol. 10; 865

Study details

Secondary publication of another included study- see primary study for details	NA
Other publications associated with this study included in review	NA
Trial name / registration number	NCT03570268
Study type	Randomised controlled trial (RCT)
Study location	Italy
Study dates	January 2015 - March 2016
Sources of funding	Italian Ministry of Health
Inclusion criteria	• Diagnosed with either: Parkinson Diseases, Multiple Sclerosis or stroke • Able to walk 10 m independently with or without a mobility aid • Willing to commit to the educational program • Able to give written informed consent<[A-Z][6]>
Exclusion criteria	• Major depression • Severe joint/bone disorder interfering with mobility

	• Aphasia if interfering with understanding the aims of the study and self-administered tests • Relapses in the previous 3 months (MS) • Stroke occurred in < 4 weeks before study entry • Cognitive impairment (Mini Mental State Examination score <21)
Recruitment / selection of participants	NR
Intervention(s)	Education Participants received an education and tailored home based exercise programme. Educational sessions were peer to peer, lasting 1h each and consisted of brainstorming, problem-solving, and action planning activities and increasing the knowledge of the pathology-specific types of falling, behavioural and environmental fall risk factors. Sessions were led by a trained physical therapist who delivered information to small groups of 2-4 people. Following the educational sessions, participants received 2 1h exercise sessions and a 1h follow up session 2 days after the last exercise session. Participants were instructed to perform exercises at home 2-3 times a week for 2 months.
Population subgroups	None
Comparator	Usual care Participants received ongoing usual treatment with additional 2 1h sessions for stretching exercises.
Number of participants	N=90
Duration of follow-up	6 months
Indirectness	None

Study arms

Education (N = 42)

Control (N = 48)

Characteristics

Arm-level characteristics

Characteristic	Education (N = 42)	Control (N = 48)
% Female Nominal	38	35
Mean age (SD) Mean (SD)	61 (15)	63 (11)
Comorbidities Sample size	n = 42; % = 100	n = 48; % = 100
Multiple sclerosis Sample size	n = 16; % = 38	n = 17; % = 35
Parkinson's disease Sample size	n = 15; % = 36	n = 14; % = 35
Stroke Sample size	n = 11; % = 26	n = 14; % = 29

Outcomes

Study timepoints

6-month

Outcomes

Outcome	Education, 6-month, N = 42	Control, 6-month, N = 48
Number of fallers Nominal	10	11
Number of fallers Sample size	n = 10; % = 24	n = 11; % = 23

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Outcomes-Number of fallers-Nominal-Education-Control-t6

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(Participants and assessors were not blinded to intervention received)*
Overall bias and Directness	Overall Directness	Directly applicable

Hawley-Hague, 2023

Bibliographic Reference	Hawley-Hague, H.; Tacconi, C.; Mellone, S.; Martinez, E.; Yang, F.; Su, T.-L.; Chiari, L.; Helbostad, J.L.; Todd, C.; Using Smartphone TechnolOGy to Support an EffecTive Home ExeRcise Intervention to Prevent Falls amongst Community-Dwelling Older Adults: The TOGETHER Feasibility RCT; Gerontology; 2023; vol. 69 (no. 6); 783-798

Study details

Secondary publication of another included study- see primary study for details	NA
Other publications associated with this study included in review	NA
Trial name / registration number	**The TOGETHER Trial** Trial registration number: ISRCTN12830220
Study location	UK
Study setting	Five community falls rehabilitation services across diverse socio-economic areas in Greater Manchester and South Yorkshire
Study dates	September 2018 - June 2019
Sources of funding	This paper presents independent research arising from a National Institute for Health and Care Research (NIHR) Postdoctoral Fellowship Award to Dr Helen Hawley-Hague, (PDF-2015-08-012). The study was further supported by the National Institute for Health and Care Research Applied Research Collaboration-Greater Manchester. The views expressed in this publication are those of the author(s) and not necessarily those of the National Health Service, the National Institute for Health and Care Research or the Department of Health.
Inclusion criteria	Older adults at risk of falls (aged 50+ years) and assessed as requiring a falls rehabilitation exercise programme were eligible to take part. Participants needed to have good 3G/4G mobile phone reception (able to access webpages) or Wi-Fi in their home assessed by their health professional or by the researcher when taking consent.
Exclusion criteria	Exclusions included older adults who were unable to follow instructions (unless supported by a family member/carer), unable to understand written English (unless supported by a family member/carer), with severe visual impairment, those in long-term residential or nursing care, and those with terminal illness or expected shortened lifespan, defined as less than 6 months, as determined by the recruiting sites.

Recruitment / selection of participants	Participants were identified through five community falls rehabilitation services across diverse socio-economic areas in Greater Manchester and South Yorkshire (both urban and suburban) between September 2018 and December 2019. Health professionals gave patients the study information sheet and informed them about the intervention on first referral to their service. The health professionals then asked the patient if they were happy to be contacted by the researcher, who demonstrated the technology at the patient's home. Where possible, a former patient who had used the smartphone applications before accompanied the researcher to demonstrate the technology to assist in promoting patient confidence in the use of the technology. Patients consented when the researcher visited and were then randomized into either intervention or control group; the researcher informed participants of their allocation.
Intervention(s)	Both the intervention and control groups received standard service. This was variable across the different sites, but all sites delivered a mix of the evidence-based Falls Management Exercise Programme (FaME) and Otago exercises as standard care. They include face-to-face delivery and a home exercise programme (with booklet). Those in the intervention group also received support through the “Motivate Me” and “My Activity Programme” apps which included the FaME and Otago exercises. 12-behaviour change techniques were adopted through the intervention and included goal setting (behaviour/outcome), action planning (recording plan to exercise in diary on smartphone/reminder text messages when it is time to start the programme), and feedback on behaviour (providing feedback on what they have done/benefits).
Population subgroups	NR
Comparator	Both the intervention and control groups received standard service. This was variable across the different sites, but all sites delivered a mix of the evidence-based Falls Management Exercise Programme (FaME) and Otago exercises as standard care. They include face-to-face delivery and a home exercise programme (with booklet). The control arm also received a study phone with a basic app where they were asked to report their exercises (secondary aim of digital adherence measure and fall detection). Participants were not able to view their exercise programme on the smartphone, receive messages, or receive feedback on the phone but received their exercises in a paper booklet as per standard service. The health professional was not able to view the exercises patients reported through the phone (data collected by basic app is for the research team only).

Number of participants	50
Duration of follow-up	6 months
Indirectness	NR

Study arms

“Motivate Me” and “My Activity Programme” mobile apps (N = 26)

Control (N = 24)

outcome measurement mobile app

Characteristics

Arm-level characteristics

Characteristic	**“Motivate Me” and “My Activity Programme” mobile apps (N = 26)**	**Control (N = 24)**
% Female Sample size	n = 17; % = 65.4	n = 17; % = 70.8
Mean age (SD) Mean (SD)	77 (8.5)	78.2 (7.4)

Outcomes

Study timepoints

6 month

Outcomes

Outcome	**“Motivate Me” and “My Activity Programme” mobile apps, 6 month, N = 26**	**Control, 6 month, N = 24**
Adherence EARS scale Mean (SD)	15.2 (7.8)	14.9 (6.1)
Number of fallers No of events	n = 15; % = 60	n = 15; % = 68.1
Number of falls (total) Mean (SD)	1.76 (2.8)	9.09 (32.6)

Taylor, 2019

Bibliographic Reference	Taylor, Suzanne F; Coogle, Constance L; Cotter, James J; Welleford, E Ayn; Copolillo, Al; Community-Dwelling Older Adults' Adherence to Environmental Fall Prevention Recommendations.; Journal of applied gerontology: the official journal of the Southern Gerontological Society; 2019; vol. 38 (no. 6); 755-774

Study details

Secondary publication of another included study- see primary study for details	NA
Other publications associated with this study included in review	NA
Trial name / registration number	NR
Study type	Randomised controlled trial (RCT)
Study location	USA
Study setting	Community setting
Study dates	April 2012 - August 2013
Sources of funding	No funding received
Inclusion criteria	• Aged 65 years or older whose primary residence was community-dwelling • Ability to engage in dressing, toileting, bathing or hygiene, and self-care transfers at an independent or modified independent level (may need to use adaptive equipment or durable medical equipment to complete task) • Having the authority to follow through or authorize follow through with the recommendations for environmental changes

Exclusion criteria	• Currently receiving home health therapy services, • Received home health services within the past 60 calendar days • Diagnosis of dementia
Recruitment / selection of participants	Participants were recruited via flyers, community wellness seminars, electronic postings, and word of mouth.
Intervention(s)	Occupational therapists conducted 3 home visits 30-45 days apart. Home visits included semi-structured interviews, completion of ABC scale, home environmental observations, and personalised education (environmental fall hazards and ways to correct these). During the first visit the recommendations were discussed, in the second visit the recommendations were reviewed and in the last visit recommendations were evaluated.
Population subgroups	None
Comparator	Participants received generalised education instead of personalised education.
Number of participants	N=22
Duration of follow-up	NR
Indirectness	None

Study arms

Treatment (N = 12)

Control (N = 12)

Characteristics

Arm-level characteristics

Characteristic	Treatment (N = 12)	Control (N = 12)
% Female Nominal	66.7	60
Mean age (SD) Mean (SD)	74.3 (7.5)	74 (7.9)
African American Sample size	n = 8; % = 66.7	n = 6; % = 60
Caucasian Sample size	n = 4; % = 33.3	n = 4; % = 40
No recent fall Sample size	n = 5; % = 41.7	n = 4; % = 40
Recent fall Sample size	n = 3; % = 25	n = 2; % = 20
Recent injurious fall Sample size	n = 4; % = 33.3	n = 4; % = 40

Outcomes

Outcomes

Outcome	Treatment, , N = 12	Control, , N = 10
Total adherence (%) Mean (SD)	69.33 (28.85)	36.7 (36.92)

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Outcomes-Total adherence (%)-Mean SD-Treatment-Control

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(Participants and assessors were not blinded to intervention received.)*
Overall bias and Directness	Overall Directness	Directly applicable

Wu, 2010

Bibliographic Reference	Wu, Ge; Keyes, Lawrence; Callas, Peter; Ren, Xiaolin; Bookchin, Bea; Comparison of telecommunication, community, and home-based Tai Chi exercise programs on compliance and effectiveness in elders at risk for falls.; Archives of physical medicine and rehabilitation; 2010; vol. 91 (no. 6); 849-56

Study details

Secondary publication of another included study- see primary study for details	NA
Trial name / registration number	Not reported
Study type	Randomised controlled trial (RCT)
Study location	USA
Study setting	Community setting
Study dates	NR
Sources of funding	NR
Inclusion criteria	• 65 years and older • At risk for falls, defined as having either a fall in the past year or fear of falling with a score of 50% or less on the ABC Scale • Ability to walk and do weight-bearing exercises with or without assistive devices • Having no plans to be away more than 2 weeks over the study period, • Having sufficient cognition and attention to follow directions • Having a television • Having access to a broadband internet connection (such as cable or digital subscriber line) • Having visual acuity necessary to mimic movements of instructor on the television screen • Agreeing to participate in the study

	• Having the approval of their primary care physicians for participation in the study
Exclusion criteria	• Unable to ambulate and exercise independently • Unable to participate in the Comm-ex program because of travel or distance limitations • Exercise-limiting cardiac, pulmonary, orthopaedic, and/or neuromuscular diseases • Known conditions such as cancer, rheumatoid arthritis, multiple sclerosis, cerebrovascular diseases, or low back pain, with a variable natural history
Recruitment / selection of participants	Participants were recruited from the Burlington area via flyers, referrals, and ads based in local newspaper
Intervention(s)	All subjects had identical exercise instructions with the same instructor. Exercises included warm-up and a 24-form Tai-Chi sequence. Participants were asked to perform exercises 3 days week, 1h each, for 15 weeks. <u>Tele-ex:</u> Participants in the Tele-ex group exercised in their homes connected to an instructor via a custom-made video conferencing unit. <u>Comm-ex:</u> Participants in the Comm-ex group exercised at the YMCA facility, which is on a public bus route. <u>Home-ex:</u> Participants in the Home-ex group performed exercises at home without live instructions.

Population subgroups	None
Comparator	NA
Number of participants	N=64
Duration of follow-up	15 weeks
Indirectness	None

Study arms

Tele-ex (N = 22)

Comm-ex (N = 20)

Home-ex (N = 22)

Characteristics

Arm-level characteristics

Characteristic	**Tele-ex (N = 22)**	**Comm-ex (N = 20)**	**Home-ex (N = 22)**
% Female Nominal	86	80	85
Mean age (SD) Mean (SD)	76.1 (7.9)	74.1 (6.9)	75.9 (6.3)
Totals with falls in past year No of events	n = 13	n = 14	n = 16

Outcomes

Study timepoints

15 weeks

Outcome

Outcome	Tele-ex, 15-week, N = 22	Comm-ex, 15-week, N = 20	Home-ex, 15-week, N = 22
Total exercise time (h) Mean (SD)	30 (12)	31 (12)	17 (21)
Attendance rate (%) Mean (SD)	69 (27)	71 (27)	38 (46)
Total number of falls No of events	n = 3	n = 2	n = 6

Critical appraisal - Cochrane Risk of Bias tool (RoB 2.0) Normal RCT

Outcome-Total exercise time(h)-MeanSD-Tele-ex-Comm-ex-Home-ex-t15

Section	Question	Answer
Overall bias and Directness	Risk of bias judgement	High *(High risk of bias as participants, investigators, and assessors were aware of intervention received)*
Overall bias and Directness	Overall Directness	Directly applicable

Appendix E Forest plots

Figure 2: Adherence - Motivational interviewing + exercise versus exercise

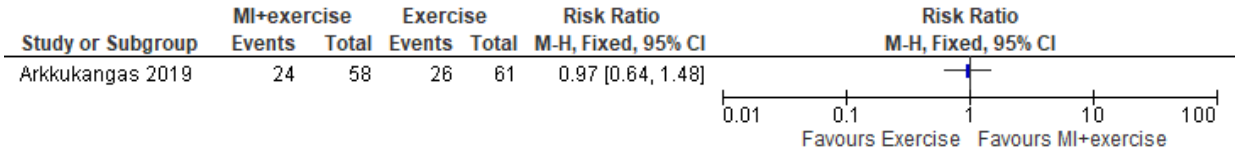


Figure 3: Number of falls – Motivational interviewing + exercise versus exercise

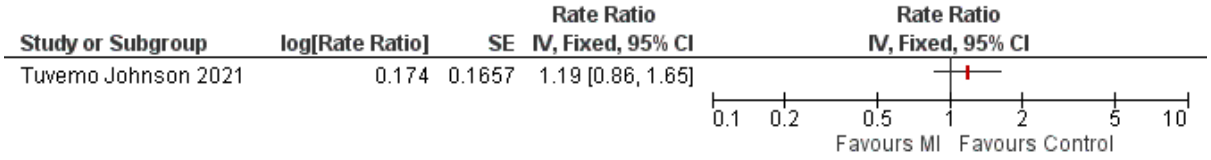


Figure 4: Number of fallers – Motivational interviewing + exercise versus exercise

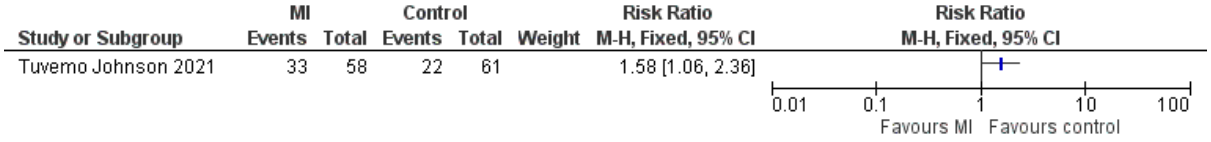


Figure 5: Participation (achieved more than 150 minutes of moderate to vigorous PA) – Motivational interviewing versus control

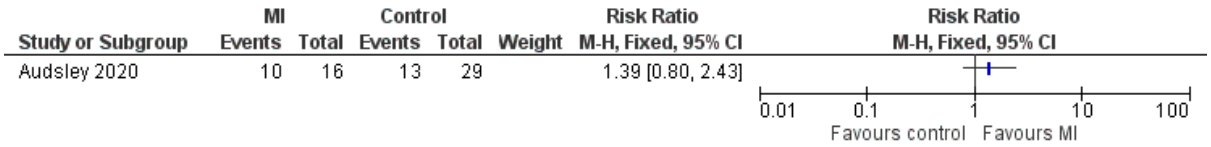


Figure 6: Number of fallers – Education versus control

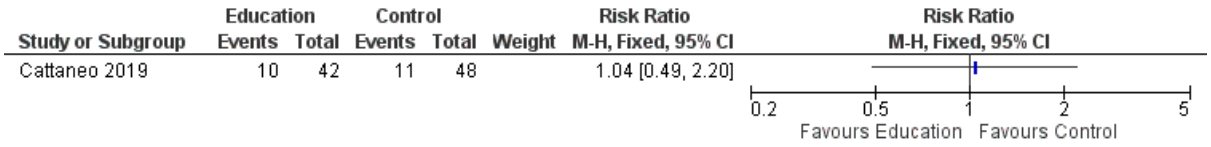


Figure 7: Adherence (attended 100%) – Personalised feedback vs control

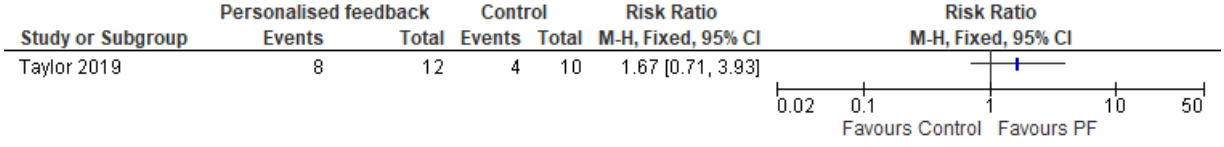


Figure 8: Adherence (attended 100%) – Live video instructions versus community exercises

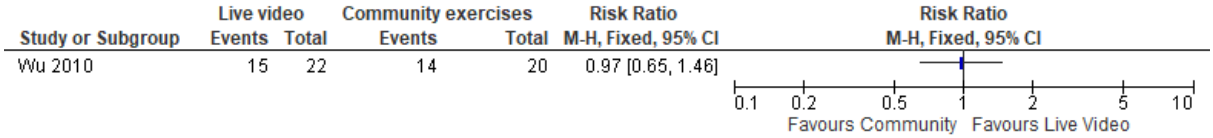


Figure 9: Participation (total exercise time in hours) – Live video instructions versus community exercises

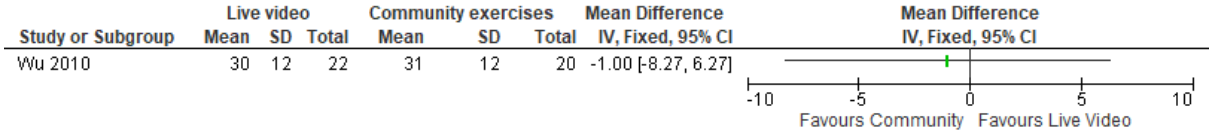


Figure 10: Number of falls – Live video instructions versus community exercises

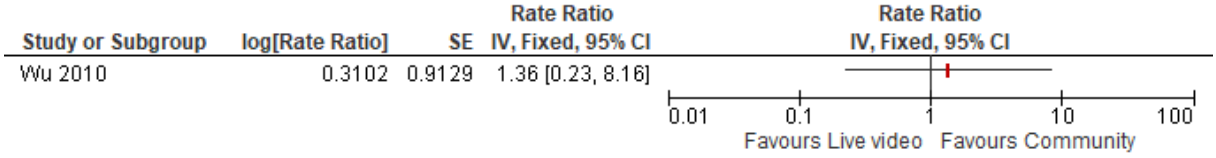


Figure 11: Adherence – Live video instructions versus unsupervised exercises

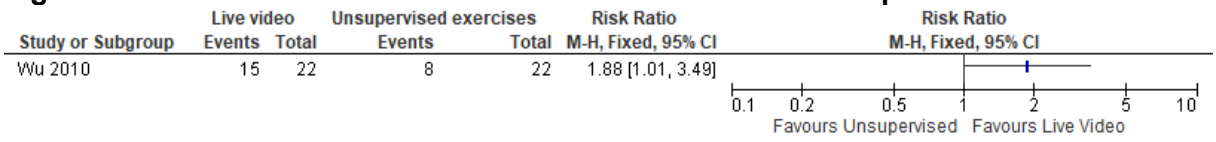


Figure 12: Number of falls – Live video instructions versus unsupervised exercises

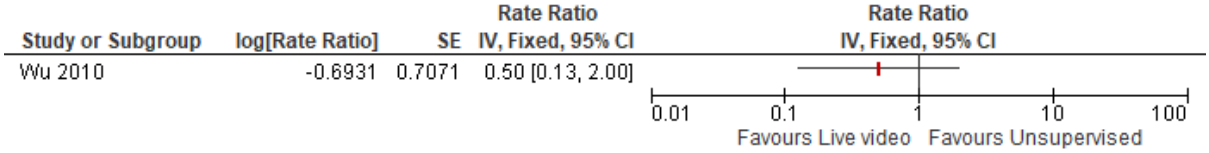


Figure 13: Participation (total exercise time in hours) – Live video instructions versus unsupervised exercise

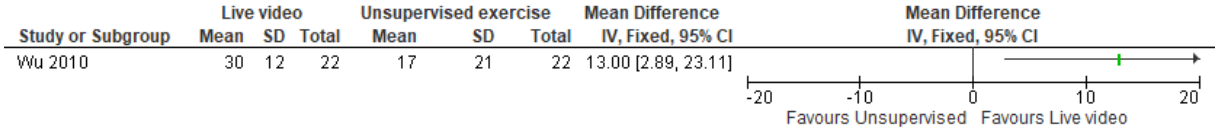


Figure 14: Adherence (attended 100%) – Community exercises versus unsupervised exercises

Figure 15: Number of falls – Community exercises versus unsupervised exercises

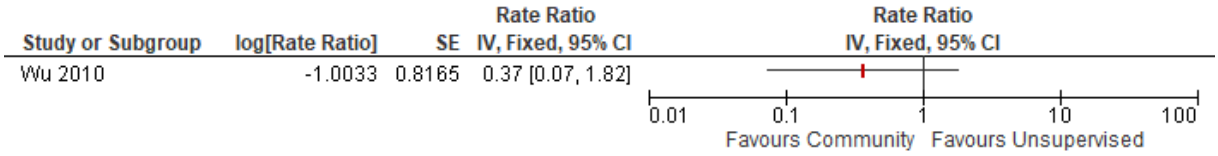


Figure 16: Participation (total exercise time in hours) – Community exercises versus unsupervised exercises

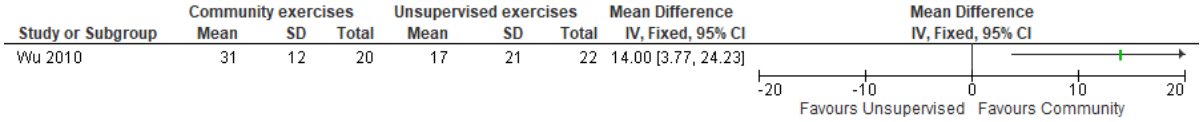


Figure 17: Adherence (EARS) – Digital phone app versus control

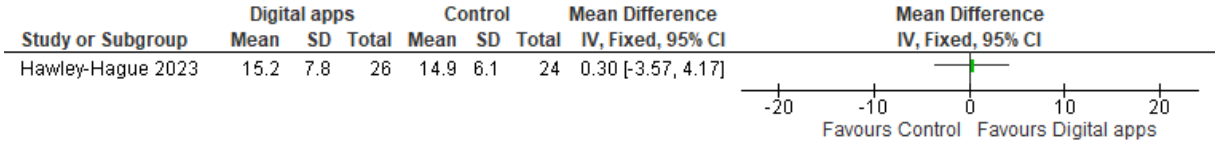
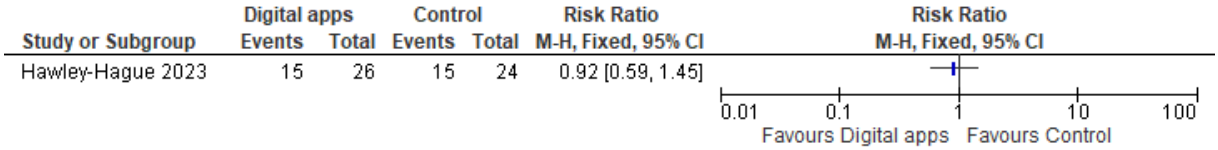


Figure 18: Number of fallers – Digital phone app versus control



Appendix F GRADEpro

Table 13: Clinical evidence profile: Motivational interviewing versus control

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Motivational interviewing	Control	Relative (95% CI)	Absolute (95% CI)		
Adherence												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	24/58 (41.4%)	26/61 (42.6%)	**RR 0.97** (0.64 to 1.48)	**13 fewer per 1,000** (from 153 fewer to 205 more)	⨁◯◯◯ Very low	CRITICAL
Number of falls												
1	randomised trials	very serious[a]	not serious	not serious	serious[b]	none	-/0	-/0	**Rate ratio 1.19**(0.86 to 1.65)	-	⨁◯◯◯ Very low	CRITICAL
Number of fallers												
1	randomised trials	very serious[a]	not serious	not serious	serious[b]	none	33/58 (56.9%)	22/61 (36.1%)	**RR 1.58** (1.06 to 2.36)	**209 more per 1,000** (from 22 more to 490 more)	⨁◯◯◯ Very low	CRITICAL
Participation (achieved more than 150 minutes of moderate to vigorous PA)												
1	randomised trials	very serious[a]	not serious	not serious	serious[b]	none	10/16 (62.5%)	13/29 (44.8%)	**RR 1.39** (0.80 to 2.43)	**175 more per 1,000** (from 90 fewer to 641 more)	⨁◯◯◯ Very low	CRITICAL

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 14: Clinical evidence profile: Education versus control

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Education	Control	Relative (95% CI)	Absolute (95% CI)		
Number of fallers												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	10/42 (23.8%)	11/48 (22.9%)	**RR 1.04** (0.49 to 2.20)	**9 more per 1,000** (from 117 fewer to 275 more)	⨁◯◯◯ Very low	CRITICAL

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 15: Clinical evidence profile: Personalised feedback versus control

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Personalised feedback	Control	Relative (95% CI)	Absolute (95% CI)		
Adherence (attended 100%)												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	8/12 (66.7%)	4/10 (40.0%)	**RR 1.67** (0.71 to 3.93)	**268 more per 1,000** (from 144 fewer to 520 more)	⨁◯◯◯ Very low	CRITICAL

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes

Table 16: Clinical evidence profile: Live video instructions versus community exercises

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Live video instructions	community exercises	Relative (95% CI)	Absolute (95% CI)		
Adherence (attended 100%)												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	15/22 (68.2%)	14/20 (70.0%)	**RR 0.97** (0.65 to 1.46)	**21 fewer per 1,000** (from 329 fewer to 189 more)	⨁◯◯◯ Very low	CRITICAL
Participation (total exercise time in hours)												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	22	20	-	MD **1 lower** (8.27 lower to 6.27 higher)	⨁◯◯◯ Very low	CRITICAL
Number of falls												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	-/0	-/0	**Rate ratio 1.36** (0.23 to 8.16)	-	⨁◯◯◯ Very low	CRITICAL

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 17: Clinical evidence profile: Live video instructions versus unsupervised exercises

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Live video instructions	Unsupervised exercise	Relative (95% CI)	Absolute (95% CI)		
Adherence (attended 100%)												

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Live video instructions	Unsupervised exercise	Relative (95% CI)	Absolute (95% CI)		
1	randomised trials	very serious[a]	not serious	not serious	serious[b]	none	15/22 (68.2%)	8/22 (36.4%)	**RR 1.88** (1.01 to 3.49)	**320 more per 1,000** (from 18 more to 520 more)	⨁◯◯◯ Very low	CRITICAL
Number of falls												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	20	22	**Rate ratio 0.50** (0.13 to 2.00)	-	⨁◯◯◯ Very low	CRITICAL
Participation (total exercise time in hours)												
1	randomised trials	very serious[a]	not serious	not serious	serious[b]	none	20	22	-	MD **14 higher** (3.77 higher to 24.23 higher)	⨁◯◯◯ Very low	CRITICAL

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 18: Clinical evidence profile: Community exercises versus unsupervised exercises

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Community exercises	unsupervised exercise	Relative (95% CI)	Absolute (95% CI)		
Adherence (attended 100%)												
1	randomised trials	very serious[a]	not serious	not serious	serious[b]	none	14/20 (70.0%)	8/22 (36.4%)	**RR 1.93** (1.03 to 3.59)	**335 more per 1,000** (from 25 more to 531 more)	⨁◯◯◯ Very low	CRITICAL
Number of falls												

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Community exercises	unsupervised exercise	Relative (95% CI)	Absolute (95% CI)		
1	randomised trials	very serious[a]	not serious	not serious	serious[b]	none	-/0	-/0	**Rate ratio 0.37** (0.07 to 1.82)	-	⨁◯◯◯ Very low	CRITICAL
Participation (total exercise time in h)												
1	randomised trials	very serious[a]	not serious	not serious		none	20	22	-	MD **14 higher** (3.77 higher to 24.23 higher)	-	CRITICAL

a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants, and assessors.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes or 0.5 x median baseline SD (or 0.5 x SMD where no baseline values given) for continuous outcomes.

Table 18: Clinical evidence profile: digital phone apps versus control

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Digital phone apps	Control	Relative (95% CI)	Absolute (95% CI)		
Adherence (EARS self reported)												
1	randomised trials	very serious[a]	not serious	not serious	very serious[b]	none	26	24	-	MD **0.3 higher** (3.57 lower to 4.17 higher)	⨁◯◯◯ Very low	CRITICAL
Number of fallers												

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Digital phone apps	Control	Relative (95% CI)	Absolute (95% CI)		
1	randomised trials	very serious[c]	not serious	not serious	very serious[d]	none	15/26 (57.7%)	15/24 (62.5%)	**RR 0.92** (0.59 to 1.45)	**50 fewer per 1,000** (from 256 fewer to 281 more)	⨁◯◯◯ Very low	CRITICAL

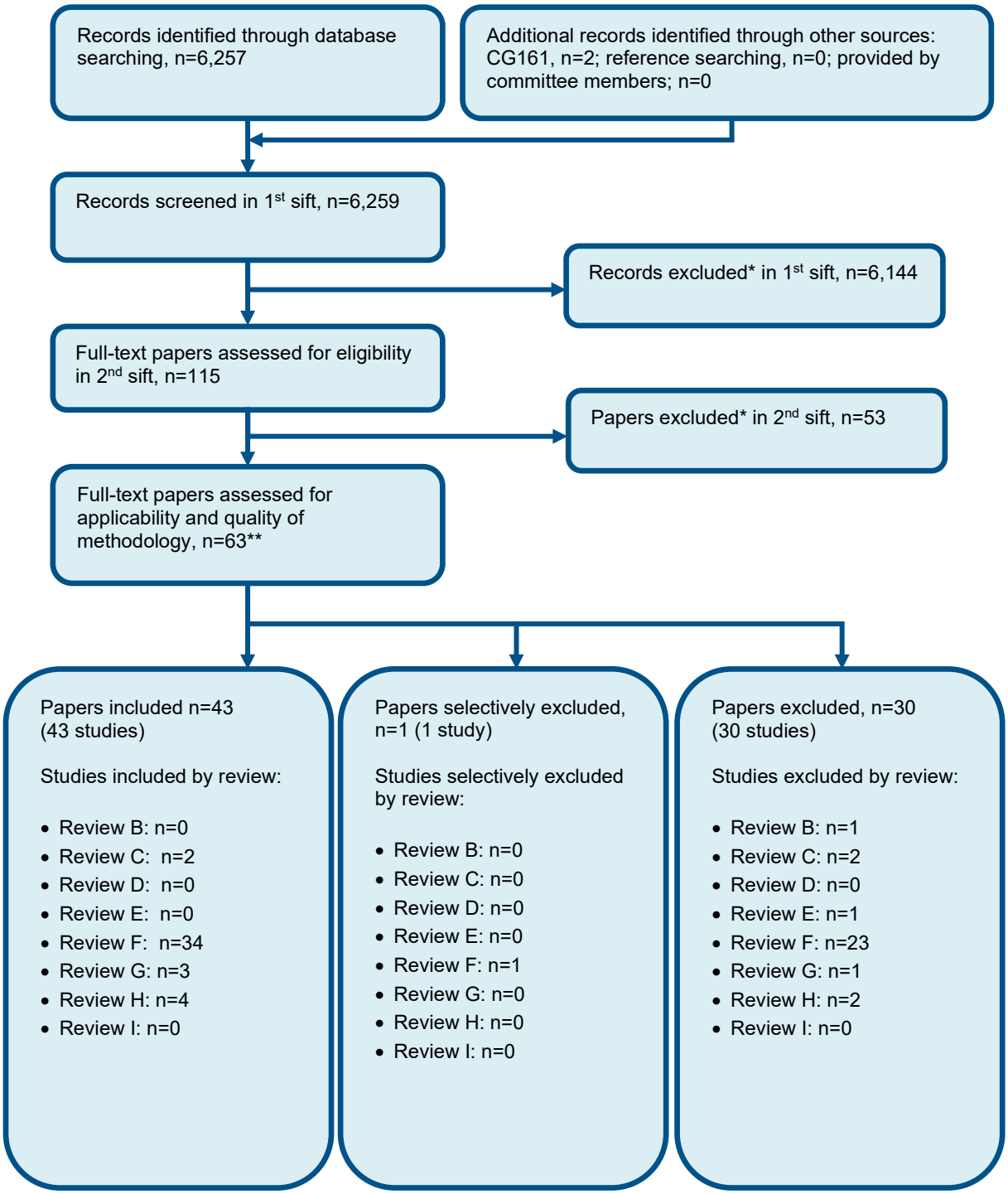
a. Downgraded by 2 increments for risk of bias due to issues regarding blinding of participants for a self reported outcome and study attrition.

b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.5 x control group SD where no baseline values given) for continuous outcomes.

c. Downgraded by 2 increments for risk of bias due to issues regarding study attrition and adherence to the intervention.

d. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs. The MIDs were 0.8 to 1.25 for dichotomous outcomes.

Appendix G Economic evidence study selection



* Non-relevant population, intervention, comparison, design or setting; non-English language
**One paper included in two reviews

Appendix H Economic evidence tables

No health economic studies were included in this review question.

Appendix I Health economic model

This review question was not prioritised for de novo health economic modelling.

Appendix J Excluded studies

J.1 Clinical studies

Table 19: Studies excluded from the clinical review

Study	Code [Reason]
Aileen, Kitson (2014) The identification and management of patients at high risk of falls in the acute care setting: a best practice implementation project. JBI Library of Systematic Reviews 12(10): 282-295	- Study does not contain an intervention relevant to this review protocol
Anthony, K., Van Der Wardt, V., Pollock, K. et al. (2018) A feasibility study to assess if an intervention to improve older people's rehabilitative exercise engagement (OPREE) can be delivered in the NHS. Age and Ageing 47(supplement3): iii14	- Conference abstract
Arkkukangas, M.; Soderlund, A.; Eriksson, S.; Johansson, A.-C.; One-Year Adherence to the Otago Exercise Program With or Without Motivational Interviewing in Community-Dwelling Older Adults; Journal of aging and physical activity; 2018; vol. 26 (no. 3); 390-395	- Study design not relevant to this protocol
Audsley, S., Orton, E., Pip, L. et al. (2020) Keeping adults physically active after falls management exercise programmes end. Physiotherapy (United Kingdom) 107(supplement1): e20-e21	- Conference abstract
Burton, Elissa, Farrier, Kaela, Lewin, Gill et al. (2017) Motivators and Barriers for Older People Participating in Resistance Training: A Systematic Review. Journal of aging and physical activity 25(2): 311-324	- Systematic review used as source of primary studies
Buyle, Margot, Jung, Yujin, Pavlou, Marousa et al. (2022) The role of motivation factors in exergame interventions for fall prevention in older adults: A systematic review and meta-analysis. Frontiers in neurology 13: 903673	- Study does not contain an intervention relevant to this review protocol
Goethals, L., Barth, N., Hupin, D. et al. (2020) Social marketing interventions to promote physical activity among 60 years and older: a systematic review of the literature. BMC public health 20(1): 1312	- Study does not contain an intervention relevant to this review protocol
Hughes, Katie J, Salmon, Nancy, Galvin, Rose et al. (2019) Interventions to improve adherence to exercise therapy for falls prevention in community-dwelling older adults: systematic review and meta-analysis. Age and ageing 48(2): 185-195	- Systematic review used as source of primary studies
McPhate, Lucy; Simek, Emily M; Haines, Terry P (2013) Program-related factors are associated with adherence to group exercise interventions for the prevention of falls: a systematic review. Journal of physiotherapy 59(2): 81-92	- Systematic review used as source of primary studies
Mittaz Hager, Anne-Gabrielle, Mathieu, Nicolas, Lenoble-Hoskovec, Constanze et al. (2019) Effects of three home-based exercise programmes regarding falls, quality of life and exercise-adherence in older adults at risk of falling: protocol for a randomized controlled trial. BMC geriatrics 19(1): 13	- Study does not contain an intervention relevant to this review protocol
Nyman, S. R. and Victor, C. R. (2011) Older people's recruitment, sustained participation, and adherence to falls prevention	- Study does not contain an intervention relevant to this review protocol

Study	Code [Reason]
interventions in institutional settings: a supplement to the Cochrane systematic review. Age and ageing 40(4): 430-6	
Saal, S, Klingshirn, H, Beutner, K et al. (2019) Improved participation of older people with joint contractures living in nursing homes: feasibility of study procedures in a cluster-randomised pilot trial. Trials 20(1): 411	- Study does not contain an intervention relevant to this review protocol
Schoon, Yvonne; Bongers, Kim T J; Olde Rikkert, Marcel G M (2020) Feasibility study by a single-blind randomized controlled trial of self-management of mobility with a gait-speed feedback device by older persons at risk for falling. Assistive technology: the official journal of RESNA 32(4): 222-228	- Study does not contain an intervention relevant to this review protocol
Simek, E.M.; McPhate, L.; Haines, T.P. (2012) Adherence to and efficacy of home exercise programs to prevent falls: A systematic review and meta-analysis of the impact of exercise program characteristics. Preventive Medicine 55(4): 262-275	- Study does not contain an intervention relevant to this review protocol
Spink, Martin J, Fotoohabadi, Mohammad R, Wee, Elin et al. (2011) Predictors of adherence to a multifaceted podiatry intervention for the prevention of falls in older people. BMC geriatrics 11: 51	- Study does not contain an intervention relevant to this review protocol
Stineman, Margaret G, Strumpf, Neville, Kurichi, Jibby E et al. (2011) Attempts to reach the oldest and frailest: recruitment, adherence, and retention of urban elderly persons to a falls reduction exercise program. The Gerontologist 51suppl1: 59-72	- Study does not contain an intervention relevant to this review protocol
Suttanon, Plaiwan, Piriyaprasarth, Pagamas, Krootnark, Kitsana et al. (2018) Effectiveness of falls prevention intervention programme in community-dwelling older people in Thailand: Randomized controlled trial. Hong Kong physiotherapy journal : official publication of the Hong Kong Physiotherapy Association Limited = Wu li chih liao 38(1): 1-11	- Study does not contain an intervention relevant to this review protocol
Talevski, J, Gianoudis, J, Bailey, CA et al. (2023) Effects of an 18-month community-based, multifaceted, exercise program on patient-reported outcomes in older adults at risk of fracture: secondary analysis of a randomised controlled trial. Osteoporosis international 34(5): 891-900	- Study does not contain an intervention relevant to this review protocol
Taylor-Piliae, RE and Coull, BM (2012) Community-based Yang-style Tai Chi is safe and feasible in chronic stroke: a pilot study. Clinical rehabilitation 26(2): 121-131	- Study does not contain an intervention relevant to this review protocol
Taylor-Piliae, Ruth E, Hoke, Tiffany M, Hepworth, Joseph T et al. (2014) Effect of Tai Chi on physical function, fall rates and quality of life among older stroke survivors. Archives of physical medicine and rehabilitation 95(5): 816-24	- Study does not contain an intervention relevant to this review protocol
Teng, B., Gomersall, S. R., Hatton, A. et al. (2020) Combined group and home exercise programmes in community-dwelling falls-risk older adults: Systematic review and meta-analysis. Physiotherapy research international : the journal for researchers and clinicians in physical therapy 25(3): 1-19	- Study does not contain an intervention relevant to this review protocol
Tiedemann, A.; Sherrington, C.; O'Rourke, S. (2012) Can yoga improve balance in older people?: A randomised controlled trial. Journal of Science and Medicine in Sport 15(suppl1): 292	- Conference abstract

Study	Code [Reason]
Tiedemann, Anne; Hassett, Leanne; Sherrington, Catherine (2015) A novel approach to the issue of physical inactivity in older age. Preventive medicine reports 2: 595-7	- Data not reported in an extractable format or a format that can be analysed
Valenzuela, T., Okubo, Y., Woodbury, A. et al. (2018) Adherence to Technology-Based Exercise Programs in Older Adults: A Systematic Review. Journal of geriatric physical therapy (2001) 41(1): 49-61	- Study does not contain an intervention relevant to this review protocol
Valenzuela, Trinidad, Razee, Husna, Schoene, Daniel et al. (2018) An Interactive Home-Based Cognitive-Motor Step Training Program to Reduce Fall Risk in Older Adults: Qualitative Descriptive Study of Older Adults' Experiences and Requirements. JMIR aging 1(2): e11975	- Study design not relevant to this review protocol
van Het Reve, Eva, Silveira, Patricia, Daniel, Florian et al. (2014) Tablet-based strength-balance training to motivate and improve adherence to exercise in independently living older people: part 2 of a phase II preclinical exploratory trial. Journal of medical Internet research 16(6): e159	- Study design not relevant to this review protocol
Vaziri, Daryoush D, Aal, Konstantin, Ogonowski, Corinna et al. (2016) Exploring user experience and technology acceptance for a fall prevention system: results from a randomized clinical trial and a living lab. European review of aging and physical activity : official journal of the European Group for Research into Elderly and Physical Activity 13: 6	- Study does not contain an intervention relevant to this review protocol
Wesson, Jacqueline, Clemson, Lindy, Brodaty, Henry et al. (2013) A feasibility study and pilot randomised trial of a tailored prevention program to reduce falls in older people with mild dementia. BMC geriatrics 13: 89	- Population not relevant to this review protocol
Whitney, Julie; Jackson, Stephen H D; Martin, Finbarr C (2017) Feasibility and efficacy of a multi-factorial intervention to prevent falls in older adults with cognitive impairment living in residential care (ProF-Cog). A feasibility and pilot cluster randomised controlled trial. BMC geriatrics 17(1): 115	- Study does not contain an intervention relevant to this review protocol
Winters-Stone, K.M., Horak, F., Dieckmann, N.F. et al. (2023) GET FIT: A Randomized Clinical Trial of Tai Ji Quan Versus Strength Training for Fall Prevention After Chemotherapy in Older, Postmenopausal Women Cancer Survivors. Journal of Clinical Oncology 41(18): 3384-3396	- Study does not contain an intervention relevant to this review protocol
Ximenes, Maria Aline Moreira, Brand?o, Maria Girlane Sousa Albuquerque, Ara?jo, Thiago Moura de et al. (2021) Effectiveness of educational interventions for fall prevention: a systematic review. Texto & contexto enferm 30: e20200558-e20200558	- Systematic review used as source of primary studies
Zijlstra, G A Rixt, van Haastregt, Jolanda C M, Ambergen, Ton et al. (2009) Effects of a multicomponent cognitive behavioral group intervention on fear of falling and activity avoidance in community-dwelling older adults: results of a randomized controlled trial. Journal of the American Geriatrics Society 57(11): 2020-8	- Study does not contain an intervention relevant to this review protocol

J.2 Health Economic studies

Published health economic studies that met the inclusion criteria (relevant population, comparators, economic study design, published 2005 or later and not from non-OECD country or USA) but that were excluded following appraisal of applicability and methodological quality are listed below. See the health economic protocol for more details.

Table 20: Studies excluded from the health economic review

Reference	Reason for exclusion
None	