Age and Ageing 2019; **48:** 327–336
doi: 10.1093/ageing/afy189
Published electronically 7 January 2019

SYSTEMATIC REVIEWS

Podiatry interventions to prevent falls in older people: a systematic review and meta-analysis

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Abstract

Background: foot problems are independent risk factors for falls in older people. Podiatrists diagnose and treat a wide range of problems affecting the feet, ankles and lower limbs. However, the effectiveness of podiatry interventions to prevent falls in older people is unknown. This systematic review examined podiatry interventions for falls prevention delivered in the community and in care homes.
Methods: systematic review and meta-analysis. We searched multiple electronic databases with no language restrictions. Randomised or quasi-randomised-controlled trials documenting podiatry interventions in older people (aged 60+) were included. Two reviewers independently applied selection criteria and assessed methodological quality using the Cochrane Risk of Bias tool. TiDieR guidelines guided data extraction and where suitable statistical summary data were available, we combined the selected outcome data in pooled meta-analyses.
Results: from 35,857 titles and 5,201 screened abstracts, nine studies involving 6,502 participants (range 40–3,727) met the inclusion criteria. Interventions were single component podiatry (two studies), multifaceted podiatry (three studies), or multi-factorial involving other components and referral to podiatry component (four studies). Seven studies were conducted in the community and two in care homes. Quality assessment showed overall low risk for selection bias, but unclear or high risk of detection bias in 4/9 studies. Combining falls rate data showed significant effects for multifaceted podiatry interventions compared to usual care (falls rate ratio 0.77 [95% CI 0.61, 0.99]); and multifactorial interventions including podiatry (falls rate ratio: 0.73 [95% CI 0.54, 0.98]). Single component podiatry interventions demonstrated no significant effects on falls rate.
Conclusions: multifaceted podiatry interventions and multifactorial interventions involving referral to podiatry produce significant reductions in falls rate. The effect of multi-component podiatry interventions and of podiatry within multifactorial interventions in care homes is unknown and requires further trial data.
PROSPERO registration number: CRD42017068300.

Keywords

falls, podiatry, care homes, community dwelling, older people, systematic review

Key points

- Podiatry interventions reduce falls in older people who live in their own homes.
- Evidence is less clear for older people living in care homes.
- Referral to podiatry services provides reductions in falls.
- There is a strong case for trials of podiatry interventions to reduce falls in care homes.

Introduction

Falls are common among older people in both community and care home settings, leading to injury, fear, hospitalisation, loss of function and death [1, 2]. Annually, falls cost the National Health Service (NHS) in the UK more than £2 billion and in the USA, this figure is as high as $100 billion [3, 4]. To date, preventative interventions have typically included strengthening and balance exercises, medication review, physiotherapy, occupational therapy, and detecting and treating visual impairment [5].

More recently, foot problems in older people [6, 7] have been shown to be associated with falls [8, 9]. Foot-related risk factors include foot pain, reduced ankle joint range of motion, hallux valgus deformity (bunion), and reduced toe plantar flexor muscle strength, while footwear-related risk factors include increased heel height, the absence of a strap, lace or other retaining medium and reduced sole contact area [8–11]. These factors have led to the development of podiatry interventions to reduce falls [12, 13]. Podiatrists improve mobility for patients by providing assessment, diagnosis and treatment of common and complex lower-limb pathology using a wide range of treatment modalities (manual debridement, surgical techniques, exercises, footwear and orthoses provision) [14].

Previous systematic reviews have shown encouraging effects of foot and ankle exercises alone on balance and falls. Furthermore, footwear and orthoses interventions have been shown to have a beneficial effect on balance only in community-dwelling older people [15, 16]. A systematic evaluation of multifaceted podiatry intervention packages (callus debridement, exercise, footwear, orthoses) on falls or falls rate has not been undertaken.

Older people living in care homes are around three times more likely to fall compared with those living in the community, therefore understanding effective ways to reduce falls in care homes is important [17]. Evidence for reducing care home falls remains equivocal [18] and other than footwear assessment, the effects of podiatry interventions on falls have not been evaluated in this setting.

The aim of this systematic review is to determine the effectiveness of podiatry interventions for falls reduction in older adults residing in the community and in care homes.

Methods

The review was conducted according to the Cochrane Handbook for Systematic Reviews (v 5.10) [19] and reported using PRISMA statement guidance [20]. Methods with an explicit PICOS (Population, Intervention, Comparison, Outcome, Study-type) statement were pre-specified and documented in a protocol registered with PROSPERO, registration number CRD42017068300 [21].

Search strategy and selection criteria

Ten electronic databases (Medline, AMED, PeDRO, CINAHL, Embase, Cochrane Central Register of Controlled Trials, CDSR, DARE, HTA and ZETOC) were searched for randomised-controlled trials (RCTs) and quasi-RCTs published between inception and 18 July 2018.

No date or language restrictions were employed. An example search string is shown Appendix 1. Clinical trial registries (e.g. WHO ICTRP), grey literature (Google scholar, EThOS), podiatry-specific journals and reference lists of included studies were also searched. Forward citation tracking using Google Scholar was also employed to identify other potential studies.

RCTs or quasi-RCTs conducted with ambulatory adults (≥60 years), living in the community or in care home settings of any type were included. Interventions had to be delivered by podiatrists or staff trained in delivering podiatry interventions (for example, footwear provision, foot orthoses, toe exercises) to reduce pain, improve balance or preserve or improve foot health. Internationally, podiatry encompasses a wide range of techniques that could potentially be delivered by non-podiatrists so we were inclusive in our definition of podiatry-delivered interventions to include podiatry referral, footwear provision and orthosis provision. Foot and ankle exercises were included only in the context of a podiatry intervention, not as a primary falls prevention intervention [22].

Data collection and extraction

One reviewer (P.C.) examined searches and eliminated irrelevant titles. Two reviewers (C.T. and G.W.) independently screened remaining abstracts and full texts that met selection criteria. Disagreements were resolved through discussion, and a third reviewer (P.C. or H.F.) if required. Data was extracted to a standardised, pre-piloted form based on TIDieR reporting guidelines [23]. One reviewer extracted data (C.T.), another independently checked all data extraction (P.C. and G.W.). Missing information was requested from study authors.

Assessing methodological quality of included studies

Risk of bias was independently assessed by two reviewers (P. C. and C.T.). Studies were judged as either as 'low risk', 'unclear' or 'high risk' according to the Cochrane Handbook for Systematic Reviews of Interventions [19]. We considered the methodological quality for each study on the basis of the following categories: selection bias, performance bias, detection bias, potential for attrition bias, potential for reporting bias and other potential bias [24]. Disagreements were resolved by discussion, with involvement of a third review author where necessary.

Statistical analysis

Where suitable statistical summary data were available, we combined selected outcome data in pooled meta-analyses using the Cochrane statistical package RevMan [25]. Rate ratios and 95% confidence intervals were used to examine falls rate. We assessed heterogeneity using the I^2 statistic with a value of greater than 50% indicating substantial heterogeneity. Where we observed substantial heterogeneity, we used a random-effects model to pool the data and investigated the source of the heterogeneity. Where the value of the I^2 statistic was less than 50% the data were pooled using a fixed-effect model.

Results

Our systematic search identified 35,857 records, of which 35,838 were excluded. Reasons for exclusion were due to the study design not meeting the selection criteria or the intervention was not a podiatry intervention. A list of excluded studies can be found in Appendix 7. Nine studies (18 reports) were eligible for inclusion [12, 13, 26–32]. Two studies had insufficient detail to include in analyses and further details have been sought from the authors (see Appendix 8). Results of the study flow are displayed in Figure 1.

Included studies

Studies employed a number of different designs including: quasi-experimental (two studies), RCT (six studies) and cluster-RCT (one study). Table 1 summarises the key characteristics of the included studies. Additional details are available in Appendix 2. Studies were conducted in Australia, the USA, Canada, Spain, the UK and Ireland (Table 1). Seven trials were conducted in the community and in participants' homes [12, 13, 26–29, 32]; two trials took place in care homes [30, 31].

Participants

The number of randomised participants (n = 6,502) ranged from 40 to 3,727 in each trial. The age of participants ranged between 69 and 87 years. Both sexes participated in each trial, the percentage of women (65.2%) taking part in the trials was higher than men. Six studies were conducted with people who had fallen or were at risk of falls, and three were conducted with participants who had existing health conditions such as peripheral sensory loss [26] and foot pain [13, 32] (Table 1).

Interventions

Three types of intervention were identified based on the falls taxonomy developed by Lamb *et al.* [33]:

(i) Single component podiatry interventions (two studies, 167 participants) [26, 32], using insoles [26] or off-the-shelf footwear in addition to routine podiatry care [32].
(ii) Multifaceted podiatry interventions (three studies, 1,358 participants) [12, 13, 31]. A package of podiatry interventions was given to every participant and included routine podiatry, the provision of advice and information, footwear and/or orthoses if required and home-based foot and ankle exercises.
(iii) Multifactorial interventions (four studies, 4,984 participants) [27–30]. These were assessment and referral based and carried out by a multi-disciplinary team (MDT), all included a podiatry risk assessment and referral to podiatry. It is unclear if referral led to podiatry treatment or not.

Intervention details profiled using the TiDieR guidelines [23] are summarised in Appendix 3.

Of the nine studies, eight compared an 'active' intervention with usual care [12, 13, 27–32], and one with a sham insole [26]. The interventions were typically delivered by a podiatrist. In four trials, a podiatrist facilitated the intervention as part of a wider MDT delivering the intervention (Appendix 3). There was limited information about intervention content, dose or frequency. The length of the intervention period ranged from 12 weeks [26, 30, 31] to 104 weeks [28] (Table 1). Assessment of intervention fidelity regarding referral, participant attendance at podiatry and adoption of recommendations was conducted in four studies [12, 13, 27, 28].

Study quality and risk of bias

Risk of bias is summarised for individual trials in Figure 2 and Appendix 4. The majority of included studies had balanced groups at baseline. Allocation concealment and methods

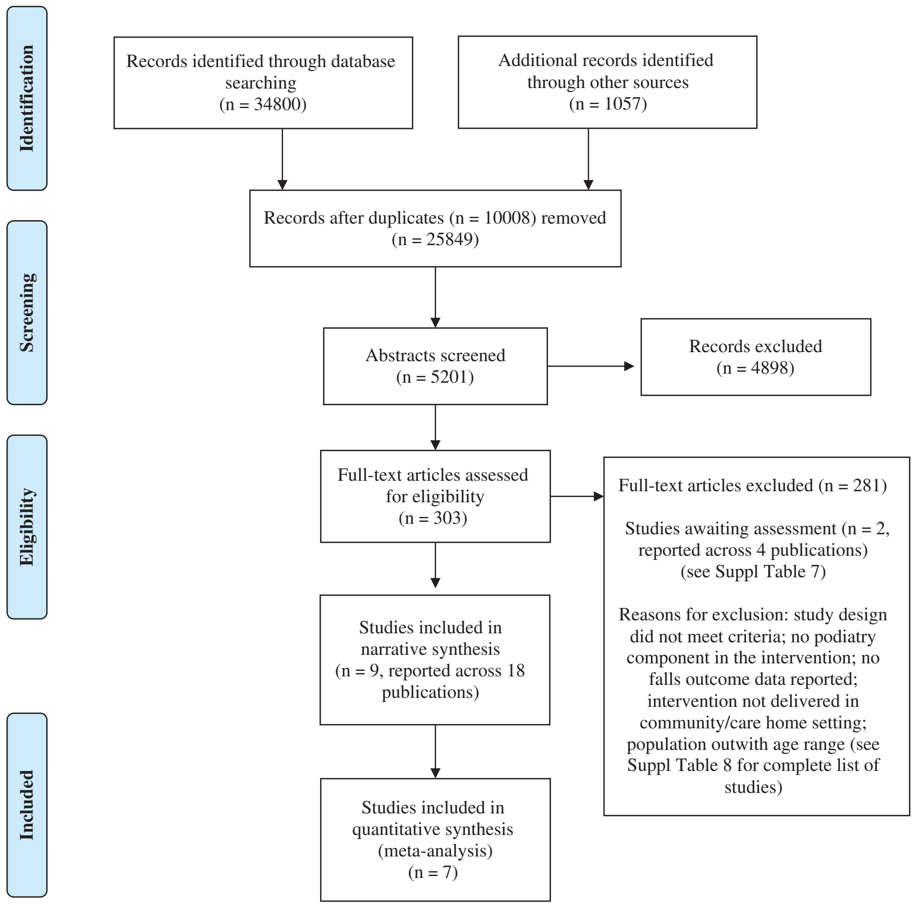

Figure 1. PRISMA flow chart.

of randomisation sequence generation were adequately reported 7/9 studies. Only five studies reported blinding of outcome assessors [13, 27, 29–31]. Due to the nature of the intervention, blinding was not possible in 6/10 studies [12, 13, 28, 29, 31, 32].

Studies reported a low level of withdrawals. Overall, ~89% of participants were retained over the follow-up period, which was similar in both intervention and control groups. One study did not report the number of withdrawals [28].

Synthesis of results and effectiveness for podiatry interventions

The included trials used a large number of heterogeneous validated and non-validated outcome measures and were recorded at multiple time points during and after the intervention period (Appendix 2).

Primary outcome: falls rate

Falls rate, that is, number of falls over a defined period, was the primary outcome in seven studies (Table 1) [12, 13, 27–31]. Self-report methods using monthly falls calendars or diaries were used to report on falls rate, number of falls, time to first fall, proportion of fallers and proportion of multiple fallers. This diversity of assessment methods made comparison across the studies challenging. Two trials reported lateral balance [26] and foot pain [32] as the primary outcome with falls as a secondary or exploratory outcome. However, it was possible to calculate rate ratios for falls across multiple component podiatry interventions (three studies), multifactorial multi-disciplinary interventions (three studies) and for one single component podiatry intervention. Findings are reported below with the forest plot in Figure 3. Falls rates for individual studies and absolute differences are reported separately in Appendix 5.

Single component podiatry interventions

Falls rate data were available only for one trial (n = 121 participants) for a single component podiatry intervention [32], and showed no significant effect on falls rate (RaR 1.58 [95% CI 0.69, 3.60]) (Figure 3) (Appendix 5).

Multifaceted podiatry interventions

Pooling data from the three multifaceted podiatry interventions [12, 13, 31], (n = 1,339 participants) demonstrated a significant benefit for falls rate (RaR 0.77 [95% CI 0.61, 0.99]). The absolute difference in falls rate ranged from

Table 1. Summary of key characteristics of included studies

Study 1. First author 2. Year 3. Study design 4. Country	Participants and setting • Study population (*N*) • Total number • Age (x(SD), years) • Gender (F/M) • Falls risk at study entry	Intervention (I)[a] 1. Name of intervention 2. Regimen 3. Duration of intervention	Comparison (C)	Primary outcomes[b]
SINGLE COMPONENT PODIATRY INTERVENTIONS				
• Menz [32] • 2015 • RCT • Australia	• Community dwelling (ambulatory older adults with disabling foot pain) • 120 • Whole group: 82 (8) • 48/72 • NR	1. Podiatry treatment plus off-the-shelf extra depth footwear 2. NR 3. 16 weeks	Podiatry treatment only	Foot Pain and Function (Foot Health Status—Pain Questionnaire)
• Perry [26] • 2008 • Quasi-RCT • Canada	• Community dwelling (older adults, moderate loss foot sole sensation) • 40 • I: 69 (3.6); C: 69 (3.1) • 19/21 • NR	• Balance enhancing facilitatory insole • NR • 12 weeks	Conventional insole	Lateral stability (gait perubation protocol)
MULTIFACETED PODIATRY INTERVENTIONS				
• Cockayne [12] • 2014 • RCT • The UK; Ireland	• Community dwelling (aged >65+) • 1,010 (996 analysis) • I: 78.1 (7.2); C:77.7 (7.0) • 610/400 • ≥1 fall in previous 12 months: 657 (65%)	• 'Multifaceted Podiatry intervention' • 2 podiatry appointments; Foot and ankle exercise 30 min/day, three x/week • 12 months	Routine podiatry care incl. treatment of pathological nails and skin lesions	Falls Rate (Falls Calendar)
• Spink [13] • 2008 • RCT • Australia	• Community dwelling (older adults with disabling foot-pain) • 305 • Whole group: 73.9 (5.9) • 211/94 • ≥2 falls in previous 12 months: I: 48; C: 45	• Routine podiatry plus multifaceted podiatry intervention • Home-based exercise Programme: 30 minutes 3x per week • 6 months	Routine podiatry care incl. treatment of pathological nails and skin lesions	Proportion of fallers/ Multiple fallers; Falls rate; Time to first fall (Falls Calendar)
• Wylie [31] • 2017 • RCT • The UK	• Care home residents • 43 • I: 86.9 (6.2); C: 85.9 (7.8) • 35/8 • NR	• Multifaceted podiatry intervention • Ankle exercises: 30 repetitions 3x per week; toe exercise: 20 repetitions each foot 3x per week • 3 months	Routine podiatry care incl. treatment of pathological nails and skin lesions	No. of falls; Time to first fall (Accident Records); Feasibility (Recruitment, retention, adherence and missing data)
MULTIFACTORIAL INTERVENTIONS				
• Dyer [30] • 2004 • Cluster RCT • The UK	• Residential care (aged 60 years+) • 196 (20 Residential homes) • I: 87.2 (SD: 6.9); C: 87.4 (SD: 6.9) • 153/43 • Tinetti gait and balance score: I: 15.43 (SD: 6.8); C: 16 (SD: 6.9)	• 'Multifactorial Risk Factor Modification Programme' • Group exercise 40 min, 3x/week for 12–14 weeks. Individual home visits and/ or assessments within 12–14 weeks: Optician assessment; Podiatry assessment (foot condition a concern at baseline assessment); one OT visit. • 3 months	None	Falls Rate/Recurrent Falls Rate (Falls Calendar)
• Mahoney [29] • 2007	• Community dwelling (older adults) • 349	• Intermediate-intensity, individual multifactorial intervention	In-home assessment	Falls Rate (Falls diary/calendar)

Continued

Table 1. Continued

Study 1. First author 2. Year 3. Study design 4. Country	Participants and setting • Study population (N) • Total number • Age (x(SD), years) • Gender (F/M) • Falls risk at study entry	Intervention (I)[a] 1. Name of intervention 2. Regimen 3. Duration of intervention	Comparison (C)	Primary outcomes[b]
• RCT • The USA	• I: 79.6 (7.2); C: 80.3 (7.7) • 274/75 • Mean no. falls in previous 12 months: I: 2.4 (SD: 2.6); C: 2.4 (SD: 2.6)	• Assessment visit 2x first three weeks after enrollment then 11 monthly TC; Review of recommendations with primary physician within one month. Longer term exercise—walking ≥4–5 days/week; Standing balance exercises 2–3 days/week • 12 months		
• Pujiula Blanch [28] • 2000 • Quasi-RCT • Spain	• Community dwelling (older adults aged >70 years) • 3,727 (707 analysis) • NR • 418/283 • NR	• Program for the prevention of falls in the elderly • NR • 2 years	Routine healthcare	Falls Rate; Mean no. falls/year; No. multiple fallers
• Russell [27] • 2010 • RCT • Australia	• Community dwelling (older adults) • 712 (698 analysis) • I: 74.9 (7.9); C: 75.8 (8.6) • 500/112 • Median no. falls/person/12 months: 2 (IQR 1–3)	• Standard care plus targeted multifactorial falls prevention programme • NR • 12 months	Standard care as organised by ED staff	Falls Rate; Falls Injuries (Falls Calendar)

Abbreviations: C—Control/ Comparator; ED—Emergency Department; F—female; I—Intervention; M—male; NR—not reported; SD—Standard Deviation; TC—telephone contact.

Key: [a]Further intervention details profiled using TiDIER reporting guidelines [23] are shown in Supplementary Table S3, available at *Age and Ageing* online; [b]Additional outcomes reported in Supplementary Table S2, available at *Age and Ageing* online. Explanation of falls outcomes: Number of fallers—Number of participants sustaining a fall; Falls incidence—number of falls; Falls rate—expressed as either the number of falls per person or with an additional time denominator; Time to first fall—falls free survival time.

0.13 [34] to 0.39 [13] (Appendix 5). Overall heterogeneity was low (I^2 = 31%).

Multifactorial interventions

Data for falls rates were also pooled from the three multifactorial trials which included podiatry referral as an intervention component [27, 29, 30] and showed a significantly beneficial effect when compared to usual care on falls rate (RaR 0.73 [95% CI 0.54, 0.98]) (Figure 3). The absolute falls rate difference ranged from 0.43 to 1.85 (Appendix 5). Heterogeneity was high (I^2 = 60%), and it is also possible that podiatry interventions were not received by those participants who were referred.

Falls prevention in care homes

Two studies examined podiatry interventions for falls prevention in care homes [30, 31]. Data could not be pooled due to heterogeneity of interventions and outcomes. One study involved a multifactorial intervention including podiatry referral [30] and although study findings significantly favoured the intervention, there was no detail about the actual podiatry treatment received. The other was a small pilot study examining a multifaceted podiatry intervention [31]. Although showing a small effect on falls rate, small sample size and high variability of scores meant no definitive conclusions about effectiveness could be drawn.

Time to first fall

Time to first fall was only measured in multifaceted podiatry interventions. None showed statistically-significant differences between intervention and control groups [12, 13, 31].

Injury data

Six studies reported injury data [13, 27–29, 31, 34]. Two studies reported rate ratios. Where reported, rate ratios for injury at the end of the intervention ranged from 0.87 [31] to 1.11 [27], suggesting no effect on falls with harm.

Secondary outcomes

There was a diverse range of secondary outcomes therefore meta-analysis was not appropriate. Studies examining number

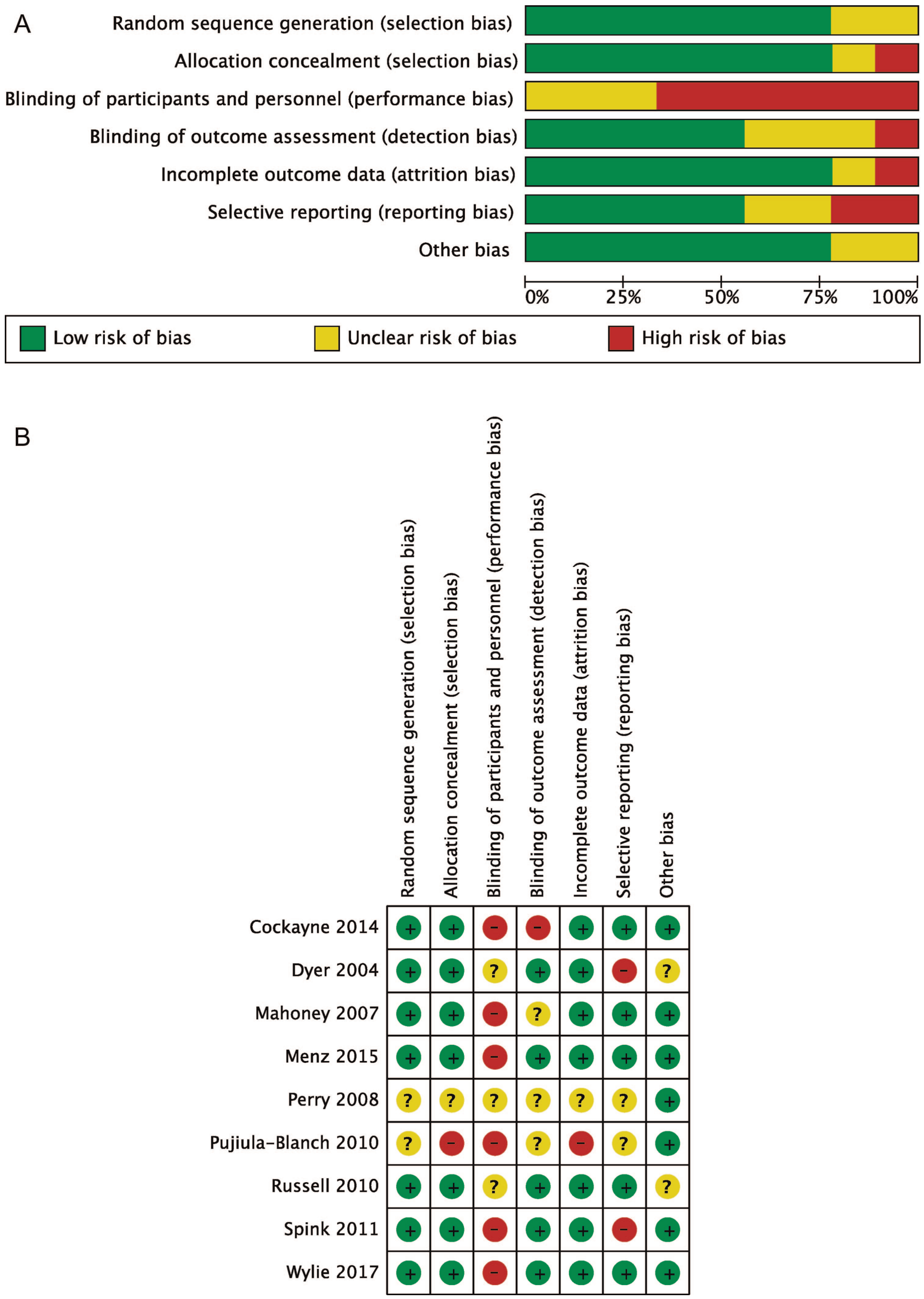

Figure 2. Risk of bias summary. A. Review authors' judgements about each risk of bias item presented as percentages across all included studies. B. Risk of bias summary: review authors' judgements about each risk of bias item for each study.

of fractures [12, 13, 27, 28], functional ability [13, 21, 32], activities of daily living [12, 13, 29] and health-related quality of life did not demonstrate any significant differences [12, 13, 31, 32]. However, significant positive effects on a range of balance measures were demonstrated in some single component podiatry interventions [26] and multifactorial interventions [30]. Although one multifaceted intervention demonstrated some between-group differences in balance, these were inconclusive [13]. Significant effects of single component interventions on foot pain and function were found using the Foot Health Status Questionnaire [32], but not the Manchester Foot Pain and Disability Index used in both single and multifaceted podiatry intervention studies [13, 32].

Economic analysis

One trial reported economic data [12]. The study used the EQ-5D, demonstrating 0.0129 enhancement of quality

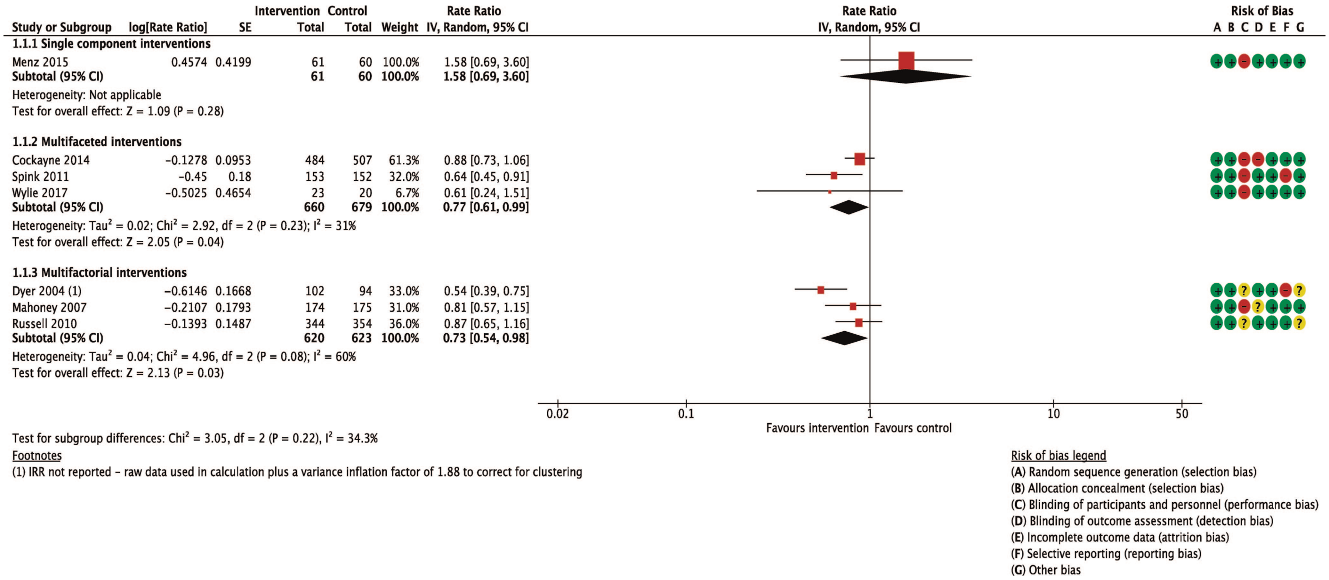

Figure 3. Forest plot: pooled results of single, multifaceted, and multifactorial interventions versus usual care: falls rate.

adjusted life years (QALYs) over 12 months. The cost per QALY ranged between £19,494 and £20,593. The cost per fall averted was £1,254 [34].

Adverse events

Five studies examined adverse events [12, 13, 26, 31, 32]. In single component interventions, bruising, ankle pain and blisters [26, 32] were experienced by participants wearing insoles and off-the-shelf shoes, which diminished over time. One multifaceted podiatry intervention study [12] reported greater foot pain at 12 months in intervention participants.

Adherence

Intervention adherence and reporting of adherence was suboptimal across the trials. Six trials reported adherence using self-report methods [12, 26, 27, 29, 31, 32]. Participants in these trials reported wearing foot orthoses or footwear most or all of the time (between 37% and 56%) [13, 31]. Similarly, a third of participants reported completing exercises at the prescribed frequency of three times per day [12, 31]. Podiatry referral rates varied significantly within multifactorial interventions: the highest in one trial, at 59% of intervention group participants [30] and lowest at 32% [29]. Data for actual uptake of the podiatry intervention in the multifactorial trials were not reported.

Completion rate

The odds ratio for drop out rate was no higher in intervention than control groups, indicating that participants tolerate the podiatry interventions well as well as control group participants receiving usual care (Appendix 6).

Discussion

To our knowledge, this is the first systematic review and meta-analysis to specifically examine the role of podiatry in falls prevention. The falls rate ratio size was broadly in line with effects of other similar interventions identified in a Cochrane Review of falls prevention interventions in community-dwelling older people [35]. In considering the role of podiatry alongside other interventions, the effect size for multifacteted podiatry interventions compared to group exercise was similar, suggesting that within multifaceted podiatry interventions, foot and ankle exercises may confer a strong protective effect against falls. This may also explain why the multifactorial effect is similar to the effect seen in multifaceted podiatry interventions. Only two studies were conducted in care homes, and study heterogeneity prevented any conclusions being drawn about effectiveness in this setting.

Study quality was moderate. Lack of participant and intervention provider blinding was a source of bias, a common issue in studies where care providers deliver interventions. Blinding of outcome assessors was undertaken in most included studies, thus detection bias was likely to be low. Seven studies recorded falls and timescales over which falls were recorded; these ranged from 1 to 12 months. This heterogeneity meant data pooling was possible for three multifaceted podiatry interventions, and three multifactorial interventions at 6 months only. Statistically-significant effects were found for both multifacteted and multifactorial interventions, but the diverse care home and community settings mean that conclusions relevant to each setting are limited.

Recommendations for standardisation of outcome and intervention reporting in falls trials are well established [33, 36].

Falls rate per person per year is recommended as the primary falls outcome [36], and a taxonomy of intervention domains [33] should be reported to ensure full intervention description. Few of the included studies adhered to all elements of current reporting recommendations. The control arm was also poorly defined in many trials. For multifactorial interventions, it was unclear if the podiatry component, usually referral or assessment, was usual care or in addition to usual care. Furthermore, in the multifactorial studies, although podiatry was an intervention component it was not clear how many participants actually received podiatry referrals, or what intervention activities were undertaken. This hampers attempts to understand the specific contribution made by podiatry interventions.

Falls were recorded by self-report falls calendar or accident reports. Both methods rely on accurate completion of written records that may not be reliably completed. Alternative objective approaches to falls assessment should be pursued to increase accuracy and validity of reporting.

Two studies evaluated effects of podiatry on falls within care homes. Differences in outcome assessment and interventions means that comparison is difficult and data pooling unfeasible. Dyer [27, 29, 30] reported significantly increased podiatry assessment frequency, but no detail about actual assessment and treatment. Wylie [31] detailed the podiatry intervention, but the study was not powered to assess effectiveness, although effect sizes were in favour of the podiatry intervention in care homes. Another Cochrane Review identified possible benefits of multifactorial interventions in care homes, and although footwear assessment was a component of some interventions, the wider package of podiatry components was not evaluated in any of the included 43 trials [18]. Thus, although the present review has shown effectiveness for podiatry interventions in community settings, the evidence for podiatry interventions in care homes is inconclusive. A full-scale trial to examine the contribution of multifaceted podiatry interventions in this setting is therefore warranted. Sample size calculations based on the results of this meta-analysis suggest that between 500 and 1,000 participants would be required for a cluster RCT. Such a trial should include health economic analysis, which has not been performed for most podiatry trials to date.

Several limitations require comment. First, despite employing comprehensive search strategies, we may not have identified all trials. Second, meta-analysis on falls rate from three multifaceted podiatry trials combined trials conducted in care homes and the community, thereby limiting the generalisability to each setting of the findings. Data are lacking on the fidelity of intervention in most studies; it is therefore unclear how many people were referred to a podiatrist or saw a podiatrist, and whether patients adhered to treatment provided. Finally, planned sub-group analysis for residential setting, level of care, intervention dose, cognitive impairment and immediate and sustained effects were not possible because of study heterogeneity and/or lack of adherence to reporting guidelines [23]. These were deviations from analyses proposed in the registered PROSPERO protocol and therefore represent a protocol deviation.

Conclusion

Multifaceted podiatry interventions can prevent falls in community-dwelling older people. However, evidence to support podiatry interventions in care homes is scant. Future studies should address this gap in knowledge, but also define the degree of disability and cognitive status of the population and follow recommended guidelines for measuring and reporting falls prevention trials.

Supplementary data mentioned in the text are available to subscribers in *Age and Ageing* online.

Declarations of Conflicts of Interest: None.

Declarations of Sources of Funding: Funded by the Chief Scientist Office of the Scottish Government, award number CGA/16/40. The financial sponsor played no role in the design, execution, analysis and interpretation of data or writing of the study.

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Received 27 March 2018; editorial decision 26 October 2018