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SYSTEMATIC REVIEW

Effectiveness of non-pharmacological interventions delivered at home for urinary and faecal incontinence with homebound older people: systematic review of randomised controlled trials

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Abstract

Introduction: Incontinence is a common, distressing condition, most prevalent in older people. There is an unmet need for effective interventions to support continence. This review focuses on non-pharmacological interventions to reduce incontinence among homebound older people. Aim: to identify interventions with potential to be delivered by care workers, nurses or family members in a person's home.
Methods: Multiple databases were searched until 15 September 2023 for randomised controlled trials reporting home-based interventions for incontinence for older people (≥65 years) living at home. Two reviewers independently screened titles, abstracts and papers against inclusion criteria, then assessed for the Risk of Bias (RoB2). A third reviewer resolved the discrepancies. Primary data were extracted and synthesised.
Results: A full-text review of 81 papers identified seven eligible papers (1996–2022, all USA), including $n = 636$ participants (561 women and 75 men). Two studies focusing on multicomponent behavioural interventions showed benefit, as did one study of transcutaneous tibial nerve stimulation self-administered through electrode-embedded socks. Three, which included cognitively impaired people, reported improvement with toileting assistance programmes, but the effects were not all significant. Results were inconclusive from a study examining the effects of fluid intake adjustments. Interventions were delivered by nurses, three in collaboration with family caregivers. No faecal incontinence interventions met the criteria.
Conclusion: There is scant evidence for continence supporting interventions delivered in older people's own homes. With an ageing population often reliant on family or social care workers well-placed to support continence promotion and policy drives for services to support older people remaining at home, this evidence gap needs addressing.

Keywords: urinary incontinence; faecal incontinence; homebound; older people; systematic review

Key Points

- It may be possible to reduce urinary incontinence in older homebound adults using behavioural interventions.
- Only one trial using a non-invasive technology delivered at home was identified. Other approaches with potential for delivery at home, but so far only tested in younger age-ranges or settings, warrant further research.

- There have been no randomised controlled trials of interventions to support homebound older adults with faecal incontinence.
- Older homebound adults, particularly men, are rarely included in research into new interventions for incontinence.

Introduction

Problems with continence, which manifest as different subtypes of urinary and/or faecal incontinence, are distressing yet common conditions that increase in prevalence with ageing and impact on both individuals and those living with them [1–4]. Incontinence is often poorly assessed, diagnosed and managed, with older adults least likely to be offered evidence-based treatments [5, 6]. Incontinence is more prevalent among people with multiple co-morbidities, including obesity [7], depression [8], mobility impairment [9] and dementia [10], and is associated with loneliness and social isolation [11], poor quality of life [12], caregiver stresses [13] and moving into care [14].

Frequently under-reported due to embarrassment, seeing continence problems as normal ageing and being unaware of treatment possibilities, many people struggle to cope at home without seeking help [15, 16]. Prevalence estimates vary across different populations and settings, with urinary incontinence (UI) consistently more commonly reported than faecal, affecting not only the frailest but also fitter community-living older people [17, 18]. As the older age groups, and particularly the 'oldest old', are now the fastest-growing section of the population, and not only in the developed world [19], the prevalence of incontinence is rising [5] and understanding the needs of the older people affected is a global issue [20]. Pharmacological solutions can play a helpful role in managing some types of incontinence, for instance, prostate problems, nocturia or overactive bladder. However, given the risks of polypharmacy in older people [21, 22], particularly for the oldest and frailest [23, 24] who are most likely to be housebound [25–27], and the uncertainty about the long-term side-effects of anticholinergic medications [28, 29], alternative approaches to supporting continence in this population are necessary.

Evidence suggests that incontinence is remediable for many people using simple lifestyle and behavioural approaches [30, 31]. To date, the bulk of research on incontinence in older people has focused on people in hospital or in care homes settings, where prevalence is more easily estimated than in community settings, and intervention effects are more readily quantified in a more clearly defined target group. Yet only 2.3% of people aged 65 years and older live in care homes (even among those aged ≥85 years, this proportion is only 10.2% [32]), and acute hospital stays are usually so short [33] that any meaningful intervention requires continuation into community settings after discharge home.

Group interventions delivered in clinic settings for people living with incontinence have been reported; however, these often have relatively high attrition rates [30]. Reasons include the severity of incontinence, inconvenient location or time and dislike of groups [34]. Stigma associated with services for incontinence may also be a factor [35].

Homebound older adults are significantly disadvantaged in terms of access to healthcare services, and there has been a paucity of research on this increasing group of vulnerable adults [36]. Given the association of incontinence with physical, mental and social consequences, there is a need to explore home-delivered interventions, particularly for people who are unable or unwilling to attend group sessions. The rationale for the review was informed by discussions, led by reviewer JF, with the local Public Involvement in Research into Ageing and Dementia group.

The aim of this systematic review is to determine the effectiveness of home-delivered interventions for urinary and/or faecal incontinence in community-living older adults.

Methods

We conducted a systematic search of the literature to identify randomised controlled trials of non-pharmacological interventions delivered in the home to improve incontinence in older people living at home in non-institutionalised settings.

Search strategy and selection criteria

The search strategy was developed in collaboration with an academic librarian and was founded on two initial scoping searches, which helped to inform and refine the search terms. The search terms were generated from the following concepts. Population: older people age 65; condition: UI, faecal incontinence; interventions: conservative, non-pharmacological, non-surgical; context: delivered in the home. Search strategies combine free text terms, limited to title and abstract-only searches, with keyword/subject heading searches. The full search strategy for Medline (via Ovid) is shown in Supplementary Information Appendix 1 and was adapted for searches in CINAHL, PsycInfo (via EbscoHOST), Embase and EMCare (via OVID). Grey literature was sought from COPAC, EThOS, OpenGrey and Proquest using a modified search strategy. Hand searches, including reference lists of relevant review papers and all included papers, completed the review.

Articles were included in the review if they described the results of randomised controlled trials of home-based conservative interventions to support urinary or faecal continence in people aged 65 and older living in non-institutional community settings. We excluded papers that trialled any pharmacological interventions. Interventions delivered in care homes, out-patient or primary care settings or

community clinics were excluded, even if the follow-up was conducted in the home.

Results of searches up to 15 September 2023 were imported into EndNote and duplicates removed. Titles, abstracts and selected full text papers were screened independently by two members of the review team (JBu, RC, JF and JFH). At each point, discrepancies in screening decisions were discussed within the team, and an inclusive approach was adopted to allow for the maximum possibility of capturing relevant articles. The methodological quality of each included paper was separately evaluated by two of the three reviewers (JBu, RC and JF) using the Cochrane Risk of Bias 2 tool [37]. In order to present a comprehensive overview of the literature in this area and to minimise bias, we included all studies regardless of quality.

Two review team members (JBu and JF) independently extracted data from the included studies (data collection templates are available from authors on request). A narrative synthesis of the findings was conducted to determine the common and distinguishing features of the studies, and pooling of outcomes in a meta-analysis was undertaken where data allowed.

A full review protocol was registered with the PROSPERO International Prospective Register of Systematic Reviews 2019 (CRD42019141664), https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=141664.

This review is reported in accordance with the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) checklist for quality (Supplementary Information Appendix 2).

Results

The PRISMA flow diagram (Figure 1) summarises the process that led to the identification of seven papers from six studies that met inclusion criteria. The characteristics of the included papers are found in Table 1. All studies were conducted in the United States, two of which included only women. All studies targeted UI; three specified the type (overactive bladder, stress/urgency/mixed and functional incontinence). The number of participants ranged from 19 to 218, and their mean age ranged from 68 to 83 years old.

Most interventions could be classified into two groups: two studies included multicomponent behavioural interventions (MBIs) [38, 39] and three were toileting assistance programmes (TAPs) [40–42]. Both MBI studies [38, 39] targeted urgency and mixed UI through bladder training and targeted stress incontinence through pelvic floor muscle exercises (PFMEs), and both incorporated lifestyle changes as well [39]. The TAPs reported were prompted voiding [41], habit training [42] and individualised scheduled toileting [40]. The results reported in 1999 [38] and 2002 [41] by McDowell, Engberg and colleagues were from different groups within the same trial. Two interventions were only investigated in single studies, one of transcutaneous tibial nerve stimulation [43] and one exploring the effects of adjusting fluid intake [44].

Recruitment approaches varied. Three studies recruited members of the public [40, 42, 44], one used both referral to a medical centre and advertising to recruit [43], [38, 41] one recruited participants who were in receipt of home care identified by nursing staff (results reported in two papers [38, 41]) and one did not describe recruitment [39]. Not all papers comment on recruitment challenges, but Colling and colleagues [42] reported great difficulty recruiting adequate numbers for the trial and altering the sampling strategy significantly to recruit sufficient participants to achieve power. McDowell, Engberg and colleagues [38, 41] also reported high participation refusal rates with consent by only 24% of those eligible. Reasons for this included the duration of the study (15 months) and the need to complete a daily diary.

Reported attrition rates of the studies ranged from 16% to 45%. The most frequently cited reason for withdrawal was the deteriorating health of either the participant or caregiver. In the study by Jirovec and colleagues, 19 of 44 participants who did not complete the study moved into residential care [40]. Attrition of fifteen of 25 older women [39] and 14 of 44 caregivers [40] occurred due to intervention demands considered to be too high in terms of time and effort.

The studies were of variable quality, with two at low risk of bias [38, 43], three indicating some cause for concern about bias [39–41] and two at high risk of bias [42, 44]. Two studies gave power calculations, one of which [43] recruited to target, but the other [42] only met the sample size by revising inclusion criteria, accepting participants living alone with no full-time caregiver despite the intervention targeting caregivers. In all other studies, there were recruitment difficulties and resultantly small sample sizes. Stratified randomisation achieved well-matched intervention and control groups in the two papers reporting different interventions with sub-samples of the same study [38, 41], groups were comparable despite no stratification in two studies [39, 43], in one study [42], there were marked differences between intervention and control groups and two studies provided no details for comparison of randomised group characteristics [40, 44].

All interventions were delivered by nurses, and the three studies, which centred around TAPs, also included caregivers in the delivery of the intervention. People who were cognitively impaired were excluded from four of the six studies [38, 39, 43, 44]. Bladder diaries were used to collect data in all studies, but the duration varied considerably. Some required diaries to be kept throughout the intervention period (5 weeks [44] and 8 weeks [38]) to allow for adjustment of the intervention during the trial. In one trial, data collection was repeated 6 months apart [39]. Others collected data pre and postintervention for periods ranging from 3 days [42, 43] to 1 [40] or 2 [41] weeks.

A variety of outcome measures were used, preventing meta-analysis of effect sizes. Although the two MBI trials and one of the TAP trials included one outcome measure in common (daily UI episode frequency), mean differences

Table 1. Description of studies included in the review.

Authors and year	Population and type of incontinence	Sample size and sex	Mean age (range)	Risk of bias	Intervention	Control	Duration	Assessment(s)	Main outcome(s)
Multicomponent behavioural interventions									
McDowell *et al*., 1999 [28]	Homebound women and men aged ≥60 Any urinary incontinence	105 W = 95 M = 10	77 (61–97)	Low	Behavioural therapy: 8x weekly nurse practitioner visits covering • Pelvic floor muscle exercise • Urge and stress strategies • Bladder retraining	Cross-over trial: waiting list control group started intervention after 8 wks of social visits every 1–2 wks by nurse practitioner	8 wks	9–10 wks: (*n* = 48 Ix, *n* = 40 cross-over Cx → Ix, *n* = 45 Cx) 3, 6, 9 and 12 mo (n not reported)	Frequency of incontinent episodes
Dougherty *et al*., 2002 [29]	Women aged ≥55 living at home in rural areas Any urinary incontinence	218 W = 218 M = 0	68 (55–95)	Some concerns	Behaviour management techniques: nurse visits, individualised and progressing through. . . • Self-monitoring: fluids and caffeine intake, timing of intake and voiding, diet promoting bowel regularity (2–4 wks) • Bladder retraining (6–8 wks) • Pelvic floor muscle exercise with biofeedback (12 wks)	Feedback given on information obtained at the baseline visit—not treatment nor promoting treatment—same number of follow-ups every 6 mo	6–24 mo	6 mo (*n* = 78 Ix, *n* = 69 Cx) 12 mo (*n* = 59 Ix, *n* = 52 Cx) 18 mo (*n* = 34 Ix, *n* = 31 Cx) 24 mo (23 Ix, *n* = 23 Cx) Any of above (*n* = 178)	Frequency of incontinent episodes Quantity of urine loss (g) Quality of life
Toileting assistance programmes (care-giver assisted)									
Jirovec and Templin, 2001 [30]	Memory-impaired older people living at home Functional urinary incontinence	118 W = 82 M = 36	80 (range not reported)	Some concerns	• Individualised scheduled toileting and fluid management: Nurse home visit every 2 mo teaching caregivers strategies + phone-call every month discussing progress	Nurse phone-call every month just 'friendly visits' with no continence focus	6 mo	6 mo (*n* = 44 Ix, *n* = 30 Cx)	Frequency of incontinent episodes
Engberg *et al*., 2002 [31]	Cognitively impaired homebound women and men aged ≥60 Urinary incontinence	19 W = 13 M = 6	83 (69–93)	Some concerns	• Individualised prompted voiding: 8 nurse practitioner visits once a wk	Cross-over trial: waiting list control group started intervention after 8 wks of social visits every 1–2 wks by nurse practitioner	8 wks	9–10 wks: (*n* = 6 Ix, *n* = 9 cross-over Cx → Ix, *n* = 10 Cx)	Frequency of incontinent episodes
Colling *et al*., 2003 [32]	Cognitively impaired women and men aged ≥55 i) caregiver-dependent ii) living alone Urinary incontinence	78 W = 63 M = 15 i) n = 59 ii) n = 19	76 (range not reported)	High	• Pattern Urge-Response Toileting: researcher home visit teaching toileting regime + weekly follow-up phone-calls	Cross-over trial: waiting list control group started intervention after 15 wks of only data collection	6 wks	3 wks—after baseline run-in, 9 wks—after 6 wk intervention (*n* = 31 Ix, *n* = 24 cross-over Cx → Ix, *n* = 24 Cx) 12 and 15 wks (*n* not reported)	Frequency of incontinent episodes Quantity of urine loss
Transcutaneous Tibial Nerve Stimulation (TTNS)									
Cava and Orlin, 2022 [33]	Women and men with ICIQ-LUTS (F/M) score > 60 living at home Over-active bladder +/− urge urinary incontinence	40 W = 32 M = 8	68 (52–85)	Low	TTNS using electrodes embedded in a conventional sock + battery-operated attachable stimulation device—30 min sessions once weekly—self-administered at home	Identical electrode embedded sock + identical looking battery-operated sham device which lit up when on but no stimulation—30 min sessions once weekly—self-administered at home	12 wks	12 wks (*n* = 20 Ix, *n* = 18 Cx)	*1^0 outcome:* 'success' = ≥50% ↓ urgency voids +/− UI or ≥ 30% ↓ 24-hour frequency *Secondary* *2^0 outcome:* quality of life
Fluid intake adjustment									
Dowd *et al*., 1996 [34]	Women aged > 50 with UI living at home	58 W = 58 M = 0	70 (52–89)	High	Adjustment of fluid intake—2 Ix groups: increase and decrease intake	Maintain fluid intake	5 wks	Weekly x5 wks 3 mo (*n* = 10 decrease, *n* = 8 maintain, *n* = 14 increase)	Frequency of incontinent episodes

W = women, M = Men, Ix = Intervention, Cx = Control, ICIQ-LUTS (F/M) = International Consultation on Incontinence Questionnaire Lower Urinary Tract Symptoms Female or Male module, 1^0 = primary, 2^0 = secondary.

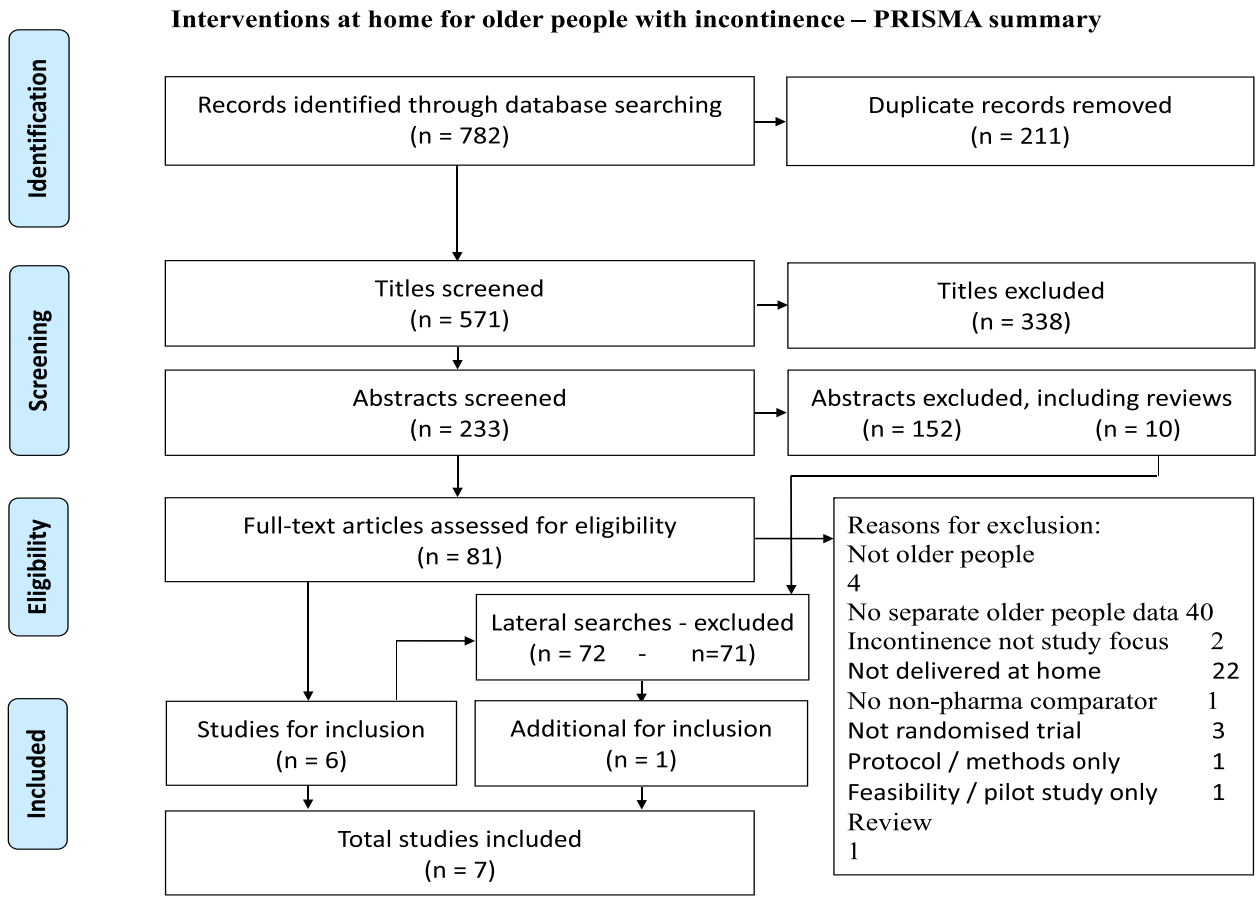

Figure 1. PRISMA flow diagram.

in changes of frequency at follow-up between intervention and control group participants were reported with no measures of uncertainty, precluding an estimation of the pooled effect from both studies. Other objective outcome measures included percentage change in daytime UI frequency [41], 24-hour urinary frequency [39, 43], volume of incontinent loss of urine [39, 42], percentage of wet day-time pad-checks [41], frequency of urgency voids [43] and proportion of voiding episodes incontinent [40]. Participant-reported outcomes included two different quality of life scales [39, 43], a subjective report of the severity of urine loss [39] and caregiver burden [41].

All studies reported benefits for participants who received interventions, either as a reduction in the frequency of incontinence episodes or a decrease in the volume of involuntary urine loss (Table 2).

MBIs effectively reduced episodes of UI by more than two per day in both the MBI trials [38, 39], statistically significant reductions in both. In the only TTNS study [43], more than twice as many who were treated with TTNS than with sham stimulation met treatment success criteria, with more than 50% higher improvements in this trial's secondary outcome, quality of life. Two other studies, both TAP trials, reported effect sizes that reached statistical significance in at least one outcome [40, 42]. For the study with the smallest sample ($n = 19$) [41] and those with the shortest duration (5 weeks [44] and 6 weeks [42]), effects were not [41] or not all [42] statistically significant, or significance was not reported [44]. Participants in the intervention groups of the studies, which included subjective outcome measures, all reported more improvements in these than control group participants: better quality of life [39, 43] and greater perceived bladder control [39]. Most caregivers supporting their care recipients with a prompted voiding programme reported perceived improvements in the form of fewer and smaller incontinent episodes and said they would continue to follow the programme after the study ended [41].

Discussion

The review aimed to identify interventions for incontinence in older people with potential for effective delivery in the home by care workers, nurses or family members. The limited evidence found for this care context showed varying degrees of effectiveness for three types of interventions: (i) MBIs, combining lifestyle changes, self-monitoring, PFME and bladder training; (ii) a wearable device intervention, transcutaneous tibial nerve stimulation delivered through a sock and (iii) TAPs, such as prompted voiding or habit training, where the aim was not to change bladder function but to avoid or minimise episodes of UI by supporting

Table 2. Findings from included studies.

Authors and year	Key findings	Intervention group outcomes	Control group outcomes	Significance of difference
Multicomponent behavioural interventions				
McDowell *et al.*, 1999 [28]	• Higher % of Ix group than Cx group completely continent by 8wks • Greater ↓ in urinary incontinent episodes/day in Ix than Cx group • Men and those using walking aids were less likely to benefit • Those who did ≥30 exercises/day, had lower depression scores or lived with someone were more likely to benefit	15% *Initial Ix group:* ↓55% *All Ix including Cx→Ix group:* ↓58%	Not reported ↓ 15%	Not reported *P* = .006
Dougherty *et al.*, 2002 [29]	*At all follow-ups Ix group compared with Cx group (showing @24 m flup):* • Greater ↓ in incontinent episodes/24 h, greatest at 24 m • Greater ↓ in urine loss/24 h, greatest at 24 m • Greater ↑ in subjective severity of urine loss • Greater ↑ reported quality of life, greatest at 24 m	↓70% ↓61% ↑47 (higher score = better control) ↓30% (lower score = better QoL)	↓16% ↑184% ↑19 ↓13%	*P* = .0001 *P* = .0006 *P* < .05 *P* = .0025
Toileting assistance programmes				
Jirovec and Templin, 2001 [30]	• Higher % with ↓ in incontinent episodes	64% (28/44)	50% (15/30)	*P* = <.05
Engberg *et al.*, 2002 [31]	• Greater ↓ in day-time incontinent episodes (difference not significant, by intention to treat or per protocol analyses) • Greater ↓ in % of daytime wetness on pad-checking (difference not significant, by intention to treat or per protocol analyses)	*ITT:* ↓50% *PP:* ↓60% *ITT:* ↓50% *PP:* ↓50%	↓37% ↓35%	*P* = .27 *P* = .1 *P* = .35 *P* = .24
Colling *et al.*, 2003 [32]	• Greater ↓ in incontinent episodes/24 hrs (non-significant) • Greater ↓ in incontinent urine loss volume/24 hrs	*Initial Ix group:* ↓19% *Cx→Ix group:* ↓9% *Initial Ix group:* ↓39% *Cx→Ix group:* ↓56%	↓ 12% ↓ 3.5%	*P* = .23 *P* = .21 *P* < .02 *P* < .05
Transcutaneous Tibial Nerve Stimulation				
Cava and Orlin, 2022 [33]	• Higher % achieved treatment success • Greater improvement in self-reported quality of life	80% −29.1 (SD 16.5)	39% −17.7 (SD 12.8)	*P* = .02 *P* < .001
Fluid intake adjustment				
Dowd *et al.*, 1996 [34]	• No significant associations between UI and either fluid/caffeine intake • Fluid intake protocol adherence low • Reported most valuable learning from study participation: need to increase fluid intake	1–5 wks: inconclusive 3 mo: not reported by study arm	n/a n/a	Not reported Not reported

carers to manage the older person's voiding. Only the first two of these included studies with a low risk of bias and achieved significantly improved incontinence and quality of life outcomes. Study results indicate MBIs are effective in reducing episodes of UI and the severity of leakage among community-dwelling older women [38, 39], but there is insufficient evidence to determine individual component contributions. Concerns about bias were higher for TAP studies, from which evidence of effectiveness was less consistent and weaker, and likewise for the only included study of fluid intake adjustment [44].

There is an extensive body of evidence for all three types of incontinence interventions summarised above and for some of their components, showing their effectiveness in settings other than at home, e.g. particularly for PFME in nurse or physiotherapist-led groups [45–47] or TTNS in clinics [48, 49]. The high-quality evidence of efficacy for PFME in young and middle aged women [50] and in men undergoing prostatectomy [51, 52] is beginning to extend to older [50, 53] and even frail older populations [54], but rarely from interventions conducted at home. Similarly, TAPs have largely been investigated in the context of long-term care, where, in theory, formal caregivers are continuously available to deliver the intervention [55, 56]. Although the only fluid adjustment study in our review [44] reported no significant findings, a recent systematic review of caffeine and fluid interventions unrestricted by intervention setting or age criteria found these could be effective for over-active bladder symptoms [57].

This review's focus on randomised trials of interventions delivered at home adds to learning from previous reviews of interventions for incontinence among older people, which included non-randomised studies or programmes in institutional settings [17, 30, 31, 54, 56, 58, 59]. Its strengths include its inclusion of multiple databases using comprehensive search strategies and extensive lateral searches. No language limits were applied, but no relevant studies in any language other than English met the inclusion criteria.

A number of review limitations are noteworthy: the included studies were all from the USA, and all but one [43] were published 15–23 years ago, so their applicability to current healthcare provision and practice across other countries' healthcare systems may be unconvincing. Study quality varied; the high risk of bias that some papers scored, largely due to confusing reporting or a lack of detail in study procedure descriptions, led to discomfort when deciding on inclusion. The type of UI was not identified in any study, and outcomes focused on quantifiable episodes of UI or

volume of leakage, with patient reported outcome measures used in only two studies, which included quality of life [39, 43] and perceived leakage changes [39] as secondary outcomes.

It was conspicuous that the studies included only a small number of men. Although UI affects women more than men, overlooking the profound impact of incontinence on men by limiting trials to only include women denies opportunities for improvement of a condition that men also find isolating and disabling [60–62].

A notable review finding was the lack of randomised controlled trials to test interventions delivered in the home for people with faecal incontinence. Given the sensitive nature of the condition and its associated social stigma and co-morbidities, this would seem like a prime area for further research and practice development. Excluded studies in slightly younger populations suggest two approaches with potential for investigation with older people at home—biofeedback [63] and tibial nerve stimulation [64].

Other continence promotion interventions have only been tested in younger age ranges, including some studies with younger old people excluded from this review by its ≥65 age limit. This limit had been set with the age-range of house-bound older people in mind, who are often even older. Evidence for effectiveness in older age could not be extracted for a number of promising interventions with potential for delivery at home that appear to merit further research, specifically with older people. These included weighted vaginal cones [65], transvaginal electrical stimulation [65, 66], a weight loss programme [67], a comparison of a specialist nurse service with self-help leaflets [68], a computer-based continence promotion programme [69], internet versus leaflets for non-face-to-face pelvic floor exercise instruction [70] and a mobile app [71].

The marked worsening of incontinence among control group participants in one study [39] highlights the need for effective interventions. Although recruitment was challenging and attrition was high in some of the studies, those that achieved significant benefits illustrate the scope for further use of successful approaches. Encouragingly, secondary analysis [72] comparing homebound and non-homebound participants in one of the included MBI studies [38] found benefits were no less among the homebound. Given that homebound older adults are more likely to be in poorer health with increased functional disability than the general population [25–27], these results are encouraging and warrant further research. The challenges of study recruitment and intervention adherence, particularly carer fatigue, even for well-supported adults, as seen in the studies in this review, suggest that incontinence treatment options are challenging. Future studies to address the evidence gaps this review has highlighted will need to be developed with the involvement of housebound older people affected by continence problems and of those supporting them. Co-design approaches will be vital to ensuring that further research can minimise these challenges through testing acceptable and feasibly sustainable interventions.

There is an increasing awareness of the environmental impact of urinary and faecal incontinence products, which are usually single-use items or, if reusable, may require frequent laundering at relatively high temperatures [73]. Striving to deliver holistically sustainable continence care [74] further increases the need for interventions, which could lead to a reduction in the use of these products.

Ensuring that older people have access to evidence-based interventions that can be delivered at home will depend on the experience, attitudes and appropriate training of community nurses and care staff [75–79].

Conclusion

Robust evidence supporting conservative in-home interventions for older people with UI was found in a limited number of small studies. Randomised controlled trials of interventions for management of faecal incontinence have not been conducted in this population and setting. These and other approaches, so far only tested in younger age ranges or in institutional or other group settings, but with potential for delivery at home, warrant further research to build the evidence base for continence promotion among older people. Research that tailors urinary and faecal incontinence interventions to the specific needs of homebound women and men is imperative to improve the quality of life in this growing population.

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