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# Physiotherapists' falls prevention knowledge, beliefs and practices in osteoarthritis care: A national cross-sectional study

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## Running title

Falls prevention knowledge, beliefs and practices in osteoarthritis care

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## Abstract

**Objective:** To investigate physiotherapists' knowledge, beliefs and current practice around falls prevention in osteoarthritis (OA) care.

**Methods:** Currently registered, practicing Australian physiotherapists who care for people with hip and/or knee OA were invited to participate in this cross-sectional study. A comprehensive online survey was used to collect data that were analysed descriptively or using chi-square tests; free-text responses were classified into key themes for analysis.

**Results:** Complete responses were received from 370 eligible physiotherapists, with broad representation across Australian states and practice settings. Participants worked in public and private hospitals, community health centres, private practices and aged care facilities. The sample ranged from new graduates to experienced physiotherapists (47% had practised ≥11 years). Despite the majority having specific training or access to educational resources, physiotherapists reported only moderate confidence in assessing falls risk (median 7, interquartile range (IQR) 6-8; scale 0 (not at all confident) - 10 (extremely confident)) and delivering falls prevention care (median 7, IQR 6-8). While most participants asked about falls history (88%), only 39% used falls risk screening tools and of these, relatively few used appropriate tools. Time constraints (including competing clinical priorities) were the most frequently perceived barrier to including falls prevention activities within OA care.

**Conclusions:** This national snapshot of contemporary OA practice has revealed clear opportunities for optimising clinician confidence and skills to facilitate the uptake of best-practice falls prevention strategies. This may yield substantial benefits to patients and the health system if more falls can be prevented.

**Word count:** 245

**Keywords:** Falls; Health Knowledge, Attitudes, Practice; Osteoarthritis; Physical Therapists; Physiotherapists



## Significance and innovations

- This study provides a national snapshot of contemporary falls prevention practices within OA care, encompassing physiotherapists in all key healthcare and community settings
- While falls risk was perceived to be higher among people with OA than for the general older population, physiotherapists reported only moderate confidence in assessing falls risk and delivering falls prevention care
- Asking patients with OA about their falls history was common practice, although appropriate falls risk screening tools and specific balance tests were rarely used
- Improving physiotherapist confidence and skills in this area is needed to ensure the translation of established best-practice falls prevention evidence into routine OA care and minimise falls among those at greatest risk
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## Introduction

It is well recognised that osteoarthritis (OA) and falls are public health problems that are predominantly associated with older age.[1,2] Administrative and research data have shown falls are a major cause of injury,[3-5] hospitalisation,[6] and death[7] among older people. In Australia, over 111,000 people aged 65 years or over are hospitalised annually as the result of a fall, representing 3% of all hospital admissions for this age group.[5] From 2002-03 to 2014-15, age-standardised rates of falls requiring hospitalisation increased by 3.4% per year for men aged 65 years or over, and by 2.3% per year for similarly-aged women.[5] At a societal level, the financial impacts of falls-related injuries and hospitalisations are substantial,[8,9] given estimates of treatment costs ranging from $AUD3,906[10] to $AUD6,700[9] per fall injury treated. At a personal level, the consequences of falls can be devastating for older people, in terms of physical impacts and ability to remain living at home. There is evidence to suggest that the presence of lower limb OA may be an independent risk factor for falling. An analysis of falls data from the Osteoarthritis Initiative identified that people with newly-diagnosed knee OA or hip OA had an approximately 50% increase in their odds of falling, compared to people without these conditions.[11] Several key impairments associated with OA, such as pain, reduced muscle strength, and decreased mobility, could potentially increase an individual's falls risk.[12] People with lower limb OA have also been found to have significantly reduced balance, lower falls efficacy (confidence in avoiding falls) and greater falls risk, compared

to matched healthy controls.[13] Given the growing number of older people with OA in many countries (projected to reach 1.8 million people aged ≥65 years in Australia by 2030[14]), strategies to reduce falls incidence have the potential to prevent falls-related injury and achieve substantial health system savings.

There is evidence to indicate that exercise programs and multi-component programs incorporating exercise can reduce falls rates and risk of falling among older adults[15,16] but falls prevention evidence has not been translated into OA policy. International OA clinical guidelines routinely consider pain management, weight loss, exercise and referral for surgery but aside from the latest Australian iteration,[17] they do not include recommendations around falls risk screening or falls prevention.[18-20] Our recent editorial also raised concerns about the existing siloed approach to patient care, where falls prevention and OA care are delivered separately and usually by different clinical teams.[12] This fragmented model of care is inefficient for patients and health systems alike, and is unlikely to be sustainable given rising numbers of older people with OA who will be at risk of falling.

While there is an apparent policy gap with regards to falls prevention and OA management, it is not known whether a clinical practice gap also exists. It is important to understand factors that might be contributing to an evidence-practice gap, such as limited awareness of falls risk, so that appropriate clinician resources can be developed. There is a clear need to establish: (a) falls prevention knowledge, skills and confidence; and (b) current practice behaviours among primary contact clinicians, such as physiotherapists, who most commonly manage OA in healthcare and community settings. Consistent with this objective, this study aimed to investigate physiotherapists' knowledge, beliefs and current practices around falls prevention in the setting of hip or knee OA.

## Methods

### Study design

A national cross-sectional study, which forms the second component of a comprehensive research program into OA and falls prevention (alongside a secondary analysis of cohort data to examine OA-specific falls risk factors, and qualitative research to explore barriers and enablers to consumer participation in falls prevention activities).

### Participants

Currently registered, practising Australian physiotherapists who care for people with hip and/or knee OA were invited to participate in the study. To be eligible, individuals needed to:

- be currently registered to practice as a physiotherapist in Australia;
- be currently practising as a physiotherapist in Australia; and

- have provided OA treatment, management or advice for ≥2 patients with hip or knee OA in the past week.

**Recruitment strategy**

A national recruitment strategy was developed to span clinical and community settings, in order to maximise representativeness of the sample and generalisability of the findings. According to the Physiotherapy Board of Australia, there are currently over 31,000 physiotherapists who are registered to practice in Australia;[21] however, a breakdown by clinical field or healthcare setting is not available. The survey was advertised to physiotherapists via the national professional association (Australian Physiotherapy Association), Monash University clinical physiotherapy partners, and the research team's clinical and research physiotherapy contacts around Australia. A snowballing approach was used, where physiotherapists were encouraged to forward the advertisement containing the survey link to other eligible and potentially interested Australian physiotherapists. It was anticipated that 100-150 Australian physiotherapists would take part, based on a recent survey of physiotherapists (examining exercise adherence beliefs in OA) that used a similar recruitment and data collection approach.[22] To maximise responses,[23] participants were given the option of entering a draw for a single $200 gift card after completing the survey.

**Survey development**

The content of the Qualtrics online survey was developed by the research team, which has extensive clinical, research, and teaching experience in physiotherapy across osteoarthritis, falls prevention and gerontology. All items and response options were written and closely reviewed by the team, and a logical order of items carefully considered. The survey was then pilot tested with nine individuals, including physiotherapists and administrative staff. Pilot testing was undertaken to ensure all functionality was intact (for example, the use of skip questions) and to provide an opportunity for item/response wording to be refined according to feedback received. All pilot responses were deleted before the survey went live.

The final survey included a mix of multiple response options and open-ended questions (Supplementary file). Platform functionality ensured that missing item responses were not permitted. The questions covered: participant characteristics, OA management, falls prevention training, beliefs and awareness, and current falls prevention practices. Self-perceived confidence in providing hip or knee OA advice and care was evaluated on a purpose-designed scale ranging from 0 (not at all confident) to 10 (extremely confident). Self-perceived confidence in assessing falls risk and in delivering falls prevention care were each assessed on a similar scale.

**Data collection**

Data collection was undertaken using the secure Qualtrics survey platform. Physiotherapists who responded to the study advertisement could either contact the study team for further information or proceed directly to the online survey. The landing page of the survey provided an overview of the study and data storage principles. If physiotherapists chose to proceed, they were asked to complete three screening questions to determine their eligibility. Those who responded affirmatively to each screening question were considered eligible and were directed to the survey questions. Individuals who responded negatively to one or more of the eligibility questions were advised they were ineligible to participate and thanked for their interest. The survey could be completed using any electronic device and all responses were collected anonymously. Where a participant chose to enter the optional gift card draw, they were directed to a new Qualtrics link where their email address was collected and stored separately to their survey responses to ensure anonymity.

**Ethics approval**

Ethics approval was obtained from the Monash University Human Research Ethics Committee (project ID 13952). Informed consent was implied by survey completion.

**Data analysis**

All data were analysed descriptively using IBM SPSS Statistics 23. Potential differences in the use of falls risk screening tools, enquiring about falls history, and assessment of standing balance according to demographic (age group, gender, Australian state/territory) and clinical experience factors (years of physiotherapy practice, number of people with OA seen each week) were examined using chi-square tests. Confidence in assessing falls risk and delivering falls prevention care was evaluated according to years of physiotherapy practice using Kruskal-Wallis tests. Tests used to assess standing balance were mapped to nine key balance domains, based on the classifications and evaluation reported by Sibley et al,[24] which in turn was based on an earlier framework.[25,26] Free text responses to items were classified into key themes for descriptive analysis. After closely reviewing free text responses for emerging themes, a process of initial coding was undertaken by one of the authors (INA) to classify participant responses into key categories. These categories were reviewed and refined to ensure they accurately reflected all responses contained within. Where participant responses are provided, these are presented verbatim.

## Results

### Survey responses

In total, 490 individuals completed the preliminary screening questions. As respondents self-enrolled following study advertising, a response rate cannot be calculated. Of the respondents, 439 (90%) were eligible to participate and 51 (10%) were ineligible (most commonly due to providing OA care to <2 patients in the previous week). A total of 436 eligible physiotherapists proceeded to the survey questions, with complete survey data provided by 370 participants (85%) and partial data provided by 66 participants (15%) who exited the survey prematurely. Given there was no significant differences in age group (chi-square=3.89, p=0.57), gender (chi-square=0.22, p=0.90), Australian state (chi-square=6.51, p=0.48) or highest level of physiotherapy education (chi-square=6.20, p=0.29) between those who provided complete data and those who provided partial data, only complete data were included in the analysis.

### Participant characteristics

Table 1 summarises the participants' demographic and professional characteristics. The majority were female (*n*=267, 72%) and the sample encompassed multiple age groups. Most participants had completed an undergraduate Bachelor's degree in physiotherapy (*n*=192, 52%) although many had completed postgraduate physiotherapy qualifications including Masters degrees (*n*=121, 33%). Most of the physiotherapists worked on a full-time basis (*n*=240, 65%). Figure 1 highlights the broad representation of the participant sample. Participants came from all eight Australian states and territories, with the greatest representation from the most populous states (Victoria and New South Wales). The sample ranged from newer graduates through to highly experienced physiotherapists (21% had practised for 6-10 years, and 47% had practised for ≥11 years). All key healthcare and community settings were represented among the sample (Figure 1). Relatively few participants worked in dedicated OA services (*n*=38, 10%).

### Osteoarthritis management

As shown in Table 1, most of the sample had provided OA advice, treatment or management to 2-5 patients in the previous week (*n*=205, 55%). Some participants saw a larger OA weekly caseload: 25% saw 6-10 patients while 19% saw ≥11 patients. Self-perceived confidence in providing hip or knee OA advice and care was high (median score 8, interquartile range (IQR) 7.0-8.3). There was clear consistency in the type of education usually provided to patients with hip or knee OA. Most participants usually provided advice on exercise and/or physical activity (*n*=367, 99%), pain management (*n*=348, 94%), gait re-education (*n*=327, 88%), activity modification (*n*=324, 88%), OA pathology and/or prognosis (*n*=315, 85%) and weight loss or weight management (*n*=300, 81%), although fewer provided advice on footwear, bracing and/or taping (*n*=235, 64%).

**Falls-related training, knowledge and beliefs**

Most participants had received specific training or accessed educational resources relating to falls risk factor screening (*n*=304, 82%) or falls prevention interventions (*n*=312, 84%). The most common form of falls-related education involved accessing online resources, followed by attending a seminar, lecture or webinar, and attendance at a practical training course (Table 2). Seventy-seven per cent of participants (*n*=283) were aware of existing falls prevention program in their local geographical area of physiotherapy practice. However, physiotherapists reported only moderate confidence in assessing falls risk (median score 7, IQR 6-8) and in delivering falls prevention care (median score 7, IQR 6-8). There was a significant difference in confidence according to years of physiotherapy practice. Recent graduates (those with <1 year of practice) reported the lowest confidence in assessing falls risk (median score 5, $p<0.01$) and delivering falls prevention care (median score 6, $p=0.048$).

Most participants (*n*=285, 77%) perceived that falls risk was higher among people with hip or knee OA than for the general older population aged ≥65 years. Seventeen per cent (*n*=62) perceived a similar falls risk for people with OA, while 5% (*n*=20) were unsure and 1% (*n*=3) perceived a lower falls risk. Most participants considered that falls screening and falls prevention activities should be included in clinical guidelines for hip and knee OA (*n*=278, 75%), while 22% (*n*=83) were unsure and 2% (*n*=9) did not consider they should be included. Preferred methods for receiving falls prevention information and training included via clinical guidelines (*n*=102, 28%), face-to-face practical courses (*n*=73, 20%), online courses (*n*=61, 17%) or webinars (*n*=60, 16%), or face-to-face lectures or seminars (*n*=39, 11%). Information sheets were of less interest (*n*=27, 7%) while very few participants considered that falls prevention information or training was not necessary for physiotherapists who care for patients with hip or knee OA (*n*=4, 1%).

**Current practice in relation to falls prevention**

The majority of participants did not use any falls risk screening tools in their routine assessment of patients presenting for hip or knee OA care (*n*=227, 61%). This did not differ by age group, gender, Australian state/territory, years of physiotherapy practice or OA caseload ($p>0.05$ for all analyses). Of those physiotherapists who did report using a screening tool, few used tools designed specifically for this purpose such as the FROP-COM (31%), Falls Risk Assessment Tool (22%), Falls Risk Assessment and Management Plan (5%) and the QuickScreen (2%). Other participants who reported using a screening tool actually specified a tool that was designed to assess mobility or balance (such as the Timed Up and Go test (33%), Berg Balance Test (27%), static balance tasks (11%), timed gait tests (9%)) or fear of falling (Falls Self Efficacy Scale (5%)), rather than for falls risk screening. Some participants also reported using tools for falls risk screening that were not designed for this purpose, such as the Knee injury and Osteoarthritis

Outcome Score, the WOMAC Index, the Functional Independence Measure, and the Tardieu scale.

Asking patients with OA about their falls history was common practice for physiotherapists (*n*=327, 88%). This did not differ by age group, gender, years of physiotherapy practice or OA caseload (p>0.05 for each analysis), although there was a difference across Australian states (range 69%-100%; chi-square=16.53, p=0.02). Of those who did not usually ask about falls history, a common reason for this was the perception it was not relevant ("*only ask people over the age of 65 or if they report a history of falls*", "*will only ask if the patient raises it as an issue or if I notice they have trouble with balance related tasks*", "*tend to ask about falls history if I observe them to be in a risk category or any OP* [osteoporosis] *history*", "*most of my clients are less frail OA patients, however it should be a question I do ask*"). Other participants indicated they had overlooked asking about falls history ("*it never occurred to me to ask them about their falls risk*", "*hasn't been on my radar*", "*I had never thought about a connection between OA and falls*", "*while I was 'aware', I hadn't transferred that into clinical practice*", "*hadn't considered it before*"; and "*I have not included this in my assessment and treatment in the past and should have as it is a necessary part of assessment*").

When asked whether they usually assessed standing balance in patients presenting for hip or knee OA care, most participants reported this was only considered as part of an overall mobility or functional assessment (*n*=279, 75%). Relatively few physiotherapists (*n*=65, 18%) assessed balance using specific tests while a small proportion did not routinely assess standing balance (*n*=26, 7%). This did not differ by age group, Australian state, years of physiotherapy practice or OA caseload (p>0.05 for each analysis) although female participants were more likely to use a specific test (21% vs 9% for males; chi-square=10.95, p<0.01). Of those who reported using specific tests, the most common tests were static balance tests (43%), the Berg balance test (42%) and the Clinical Test of Sensory Interaction and Balance (32%). Other participants reported using tests that assessed functional mobility rather than standing balance *per se* (such as the Timed Up and Go test (23%), repeated sit to stand tests (12%) and timed gait tests (9%)). As shown in Figure 4, the balance tests used did not span the full spectrum of balance domains.

Most participants provided advice to their patients on falls-related risk factors such as strength, balance, gait and footwear, as shown in Figure 2. The majority of participants also reported they usually provided specific falls prevention interventions to patients with hip or knee OA (*n*=291, 79%), most commonly balance exercises/activities/training (88% of those who reported providing falls prevention interventions), strengthening/neuromuscular control exercises (64%), provision of education or advice (36%) and gait training or gait/mobility aid prescription (36%). Participants also reported they had referred people with OA to a range of falls-relevant services, including to

occupational therapists for home modifications (60%), falls prevention programs (58%), falls and balance clinics (52%), general practitioners for falls assessment or falls-related specialist referral (25%), or for vision assessment (19%).

**Barriers to including falls risk assessment and falls prevention activities**

Over one-third of participants (*n*=156, 42%) considered there were barriers to including falls risk assessment activities within the OA care they provided. Of these participants, the majority (74%) cited a lack of time or competing clinical priorities within the limited time available (Figure 3). Patient factors were also a commonly cited barrier and these included pain levels, cognitive deficits, language barriers and patient expectations or preferences for 'treatment'. A perceived lack of training, knowledge or necessary skills (including uncertainty around interpreting the results) was also identified as a barrier (14%), with specific responses highlighting this issue:

- *"Lack of knowledge and experience"*
- *"Not 100% confident with the current methods of falls risk assessment"*
- *"PD* [Professional Development] *courses don't include"*
- *"Senior physios not educating junior physios on importance of assessing falls risk and balance"*
- *"Unsure as to the most reliable/sensitive/specific tool to use"*
- *"Lack of clarity (or unaware) of valid screen tool"*
- *"Lack of awareness of current guidelines on what is the most effective tests for assessing falls risk in this population"*
- *"Lack of understanding of what the tests identify"*

When considering falls prevention activities, 28% of the sample (*n*=102) considered there were barriers to including these activities within OA care. Similar to the responses around falls risk assessment, the most frequently cited barriers were time constraints or competing clinical priorities (63%) and patient factors (36%) (Figure 3).

## Discussion

This study provides new and clinically relevant information about current physiotherapy care in relation to OA and falls prevention. The breadth of the sample, with regard to geographic location, years of physiotherapy practice, and practice setting is an important strength of this research. We found that physiotherapists are accessing falls prevention education but their confidence in assessing falls risk and delivering falls prevention care is suboptimal. Greater professional experience was not associated with key aspects of practice (enquiring about falls history, use of falls risk screening tools or assessment of standing balance); however, new graduate physiotherapists reported lower levels of confidence than their more experienced counterparts. This is not surprising, given these participants would likely be classified as 'advanced beginners'

according to Benner's stages of clinical competence.[27] While physiotherapists are (to a varying degree) including aspects of falls risk assessment and falls prevention within the OA care they provide, the approaches taken are not always evidence-informed. Perceptions that falls prevention activities are only relevant for older people were also common, as reflected by the response "*Standing balance is only assessed if patient is over 65 or has a falls history*". Taken together, these findings reveal that falls prevention evidence is not embedded within OA clinical care and that there is a pressing need for clinician-directed falls prevention educational resources that are relevant to OA populations.

As the first national physiotherapy study of its kind, there are no other prior studies with which to directly compare our findings. However, we note the absence of falls prevention recommendations in most international OA clinical guidelines[18-20,28] and suggest that these established guidelines likely underpin the scope of OA care for physiotherapists in many countries. We do note that a survey of physical therapists in Ontario, Canada (not restricted to those managing OA) found considerable variation in the components of balance that were regularly assessed.[29] Similar to our present findings, timed static balance tests, the Berg Balance Scale and the Timed Up and Go test were most frequently used by a subgroup of physical therapists who worked in orthopaedics.[29] Our research is the first step in identifying and addressing an important evidence-practice gap, through evaluating current OA clinical practice with regard to falls prevention. We will use this information to develop clinician resources that focus on improving confidence and skills around best-practice falls prevention that is relevant to routine OA care. This could lead to more appropriate use of falls risk screening techniques, with potential downstream impacts on falls frequency, falls-related injuries, and healthcare costs. As there were few associations between demographic or professional factors and physiotherapists' current practice, it is appropriate to direct efforts aiming to improve falls prevention skills and practices towards all clinicians working in this field. There may also be opportunities for including falls prevention information in updated OA clinical practice guidelines and within undergraduate/postgraduate physiotherapist training programs. We also need to address the most frequently cited barrier to incorporating falls prevention activities within OA care - time constraints. While we recognise this valid concern, we would contend that inadequate assessment of falls risk or standing balance represents an inefficient use of limited clinical time, and that even relatively non-labour intensive falls prevention interventions (such as the RESPOND program which involved telephone-based education, coaching and goal-setting[30]) can have positive impacts on reducing falls rates.[31] A recent Cochrane review also demonstrated that exercise programs targeting balance and functional training can effectively reduce falls.[15]

This study has a number of key strengths. Our multi-faceted recruitment strategy supported nationwide participation of physiotherapists from all key practice settings. The sample also

included a broad mix of age groups, levels of university education and years of practice. Given the large sample size (which well exceeded our *a priori* expectations) and the span of demographic and professional characteristics, we are confident our findings provide a nationally representative snapshot of contemporary physiotherapy practice in Australia. We also acknowledge the study limitations, including the quantitative approach which offered the opportunity to cover a breadth of topics but precluded the collection of detailed data on physiotherapists' knowledge and perceptions. We recognise our cross-sectional study provides an overview of the *status quo* and that physiotherapist knowledge, beliefs and practices are likely to change over time, particularly as new educational resources become available or professional training programs evolve. Indeed, participation in this study may be an impetus for subsequent change (given participant responses such as "*I had not considered it necessary to ask specifically, I intend to do so now*"), an unintentional but worthwhile sequela of this research.

In conclusion, while this study has demonstrated that some key aspects of falls prevention are being addressed in physiotherapy practice, there is substantial scope to improve falls risk screening and balance assessment, and to optimise clinician confidence in this area.

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## Author contributions

Study conception and design: INA, SES, ALB; survey development: INA, SES, ALB; data acquisition: INA; data analysis: INA; manuscript drafting: INA, SES, ALB; final approval of the manuscript: INA, SES, ALB.

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**Table 1. Demographic and professional characteristics of the sample**

| Characteristic | Participants (*n*=370) |
|---|---|
| Gender, *n* (%) | |
| Female | 267 (72) |
| Male | 102 (28) |
| Transgender | 1 (<1) |
| Age group, *n* (%) | |
| 20-29 years | 105 (28) |
| 30-39 years | 117 (32) |
| 40-49 years | 63 (17) |
| 50-59 years | 62 (17) |
| 60-69 years | 21 (6) |
| ≥70 years | 2 (<1) |
| Highest level of physiotherapy education*, *n* (%) | |
| Bachelor degree | 192 (52) |
| Postgraduate certificate or diploma | 41 (11) |
| Masters degree | 121 (33) |
| Doctorate* | 16 (4) |
| Physiotherapist work status, *n* (%) | |
| Full-time | 240 (65) |
| Part-time | 123 (33) |
| Casual employment | 7 (2) |
| Number of patients with hip or knee OA in past week, *n* (%) | |
| Between 2-5 | 205 (55) |
| Between 6-10 | 94 (25) |
| Between 11-15 | 39 (11) |
| 16 or more | 32 (9) |

* PhD, Doctor of Physiotherapy or Clinical doctorate degree

**Table 2. Falls-related education, and confidence by years of practice**

| Characteristic | |
|---|---|
| Specific training or resource accessed: Screening for falls risk factors | |
| Accessed online resources, *n* (%) | 222 (60) |

| | |
|---|---|
| Attended a seminar, lecture or webinar, *n* (%) | 198 (54) |
| Attended a practical (face to face) training course, *n* (%) | 94 (25) |
| Other form of specific training, *n* (%) | 46 (12) |
| Postgraduate training, *n* (%) | 8 (2) |
| Nil, *n* (%) | 68 (18) |
| Specific training or resource accessed: Falls prevention interventions | |
| Accessed online resources, *n* (%) | 221 (60) |
| Attended a seminar, lecture or webinar, *n* (%) | 212 (57) |
| Attended a practical (face to face) training course, *n* (%) | 104 (28) |
| Other form of specific training, *n* (%) | 44 (12) |
| Postgraduate training, *n* (%) | 5 (1) |
| Nil, *n* (%) | 59 (16) |
| Confidence in assessing falls risk, median (IQR) | |
| Years of physiotherapy practice | |
| <1 year (*n*=14) | 5 (4-7)* |
| 1-5 years (*n*=102) | 7 (6-8) |
| 6-10 years (*n*=79) | 7 (6-8) |
| ≥11 years (*n*=175) | 7 (6-8) |
| Confidence in delivering falls prevention care, median (IQR) | |
| Years of physiotherapy practice | |
| <1 year (*n*=14) | 6 (5-7)* |
| 1-5 years (*n*=102) | 7 (6-8) |
| 6-10 years (*n*=79) | 7 (7-8) |
| ≥11 years (*n*=175) | 7 (6-8) |

Percentages exceed 100% as participants could select more than 1 response

IQR: interquartile range

*Significant difference across groups as indicated by Kruskal-Wallis tests ($p<0.05$)

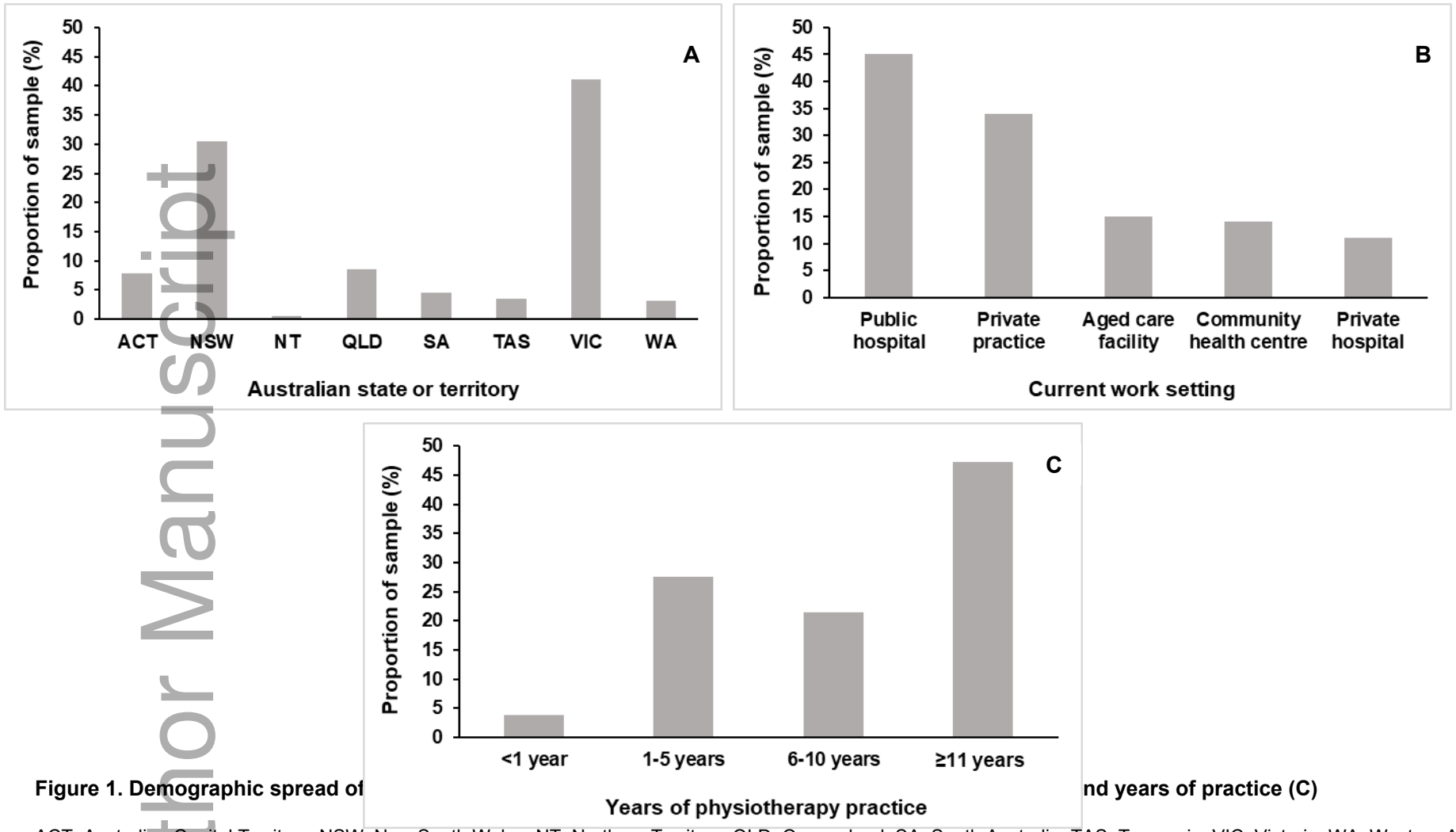


**Figure 1. Demographic spread of** **nd years of practice (C)**

ACT: Australian Capital Territory; NSW: New South Wales; NT: Northern Territory; QLD: Queensland; SA: South Australia; TAS: Tasmania, VIC: Victoria; WA: Western Australia

* Percentages exceed 100% as participants could select more than 1 response

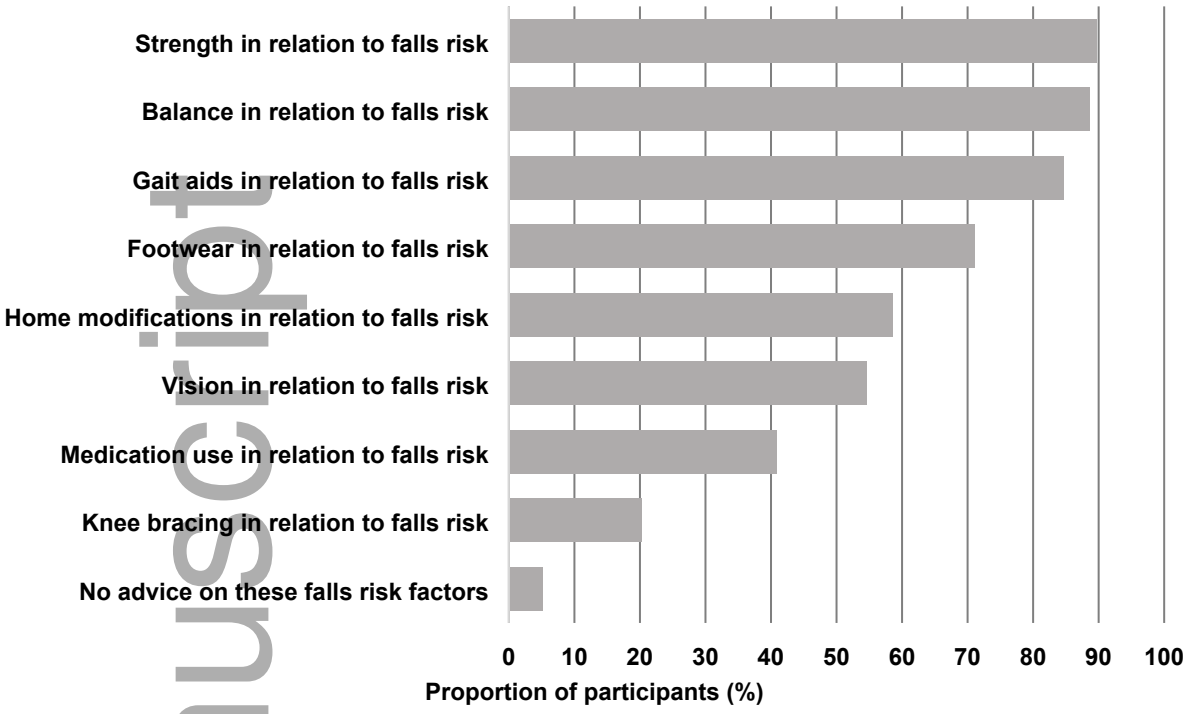


**Figure 2. Provision of falls-related advice by physiotherapists (*n*=370)**

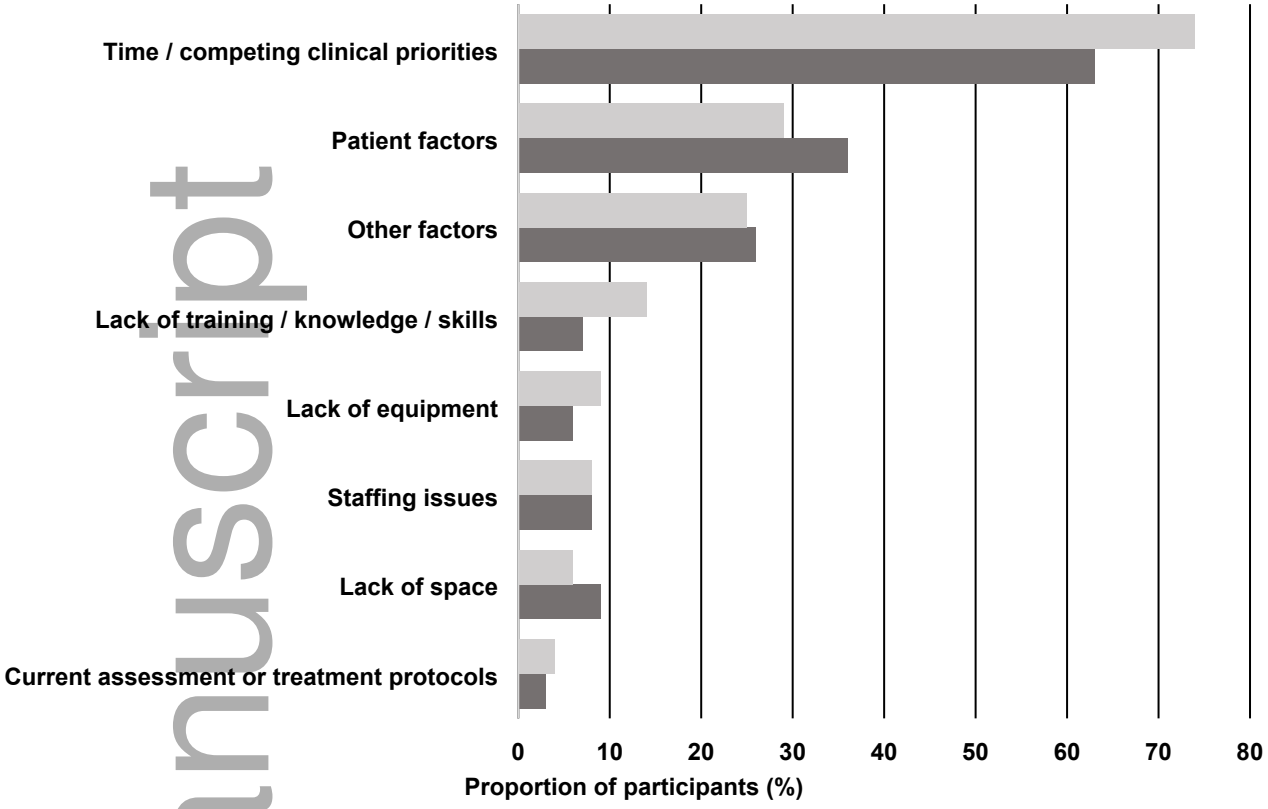


**Figure 3. Barriers to including falls risk assessment and falls prevention activities within osteoarthritis care**

Light grey bars refer to falls risk assessment activities (denominator is 156 participants who perceived barriers to including falls risk assessment activities within the OA care they provide) and dark grey bars refer to falls prevention activities (denominator is 102 participants who perceived barriers to including falls prevention activities within the OA care they provide)



| Underlying motor systems | Anticipatory postural control | Dynamic stability |
|---|---|---|
| • Berg Balance test*<br>• CTSIB*<br>• de Morton Mobility Index<br>• Functional Reach Test | • Berg Balance test*<br>• de Morton Mobility Index<br>• Functional Reach Test | • Berg Balance test*<br>• de Morton Mobility Index<br>• Sit to stand tests<br>• SPPB |
| **Static stability** | **Functional stability limits** | **Sensory integration** |
| • Berg Balance test*<br>• CTSIB*<br>• de Morton Mobility Index<br>• SPPB<br>• Static tests* | • Berg Balance test*<br>• de Morton Mobility Index<br>• Functional Reach Test | • Berg Balance test*<br>• CTSIB* |
| **Cognitive influences** | **Verticality** | **Reactive postural control** |

**Figure 4. Standing balance tests used by physiotherapists, mapped to nine key balance components**

Balance components are based on the classification reported by Sibley et al[24]

CTSIB: Clinical Test of Sensory Interaction in Balance; SPPB: Short Physical Performance Battery

Asterisks indicate the most frequently used tests by participants