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Uncovering the boundary conditions of the association between concerns about falling and physical activity in adult populations: a scoping review protocol

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ABSTRACT

Introduction Despite evidence of variation in how concerns about falling influence physical activity, many of the currently available knowledge syntheses merely assume that this relation is uniform across populations and contexts. Therefore, we propose a scoping review protocol to guide a summary of the bodywork that has examined the association between concerns about falling and physical activity in adult populations, with an eye on the availability of empirical evidence of moderation.

Methods and analyses Studies reporting on both the concepts of concerns about falling and physical activity among samples with a mean age≥18 years will be included. Five electronic databases will be searched. We will conduct a hand search of the reference lists for all included studies and relevant knowledge syntheses and perform a citing reference search for all included studies using the Web of Science. A team of six reviewers will single-screen titles and abstracts. Two reviewers will independently assess the eligibility of each study based on a full-text examination. Results will be presented using a tree graph to display the moderating factor(s) investigated, and a ratio showing the number of time evidence for moderation was examined by the total number of investigations.

Ethics and dissemination The university Human Research Protection Program determined that the proposed scoping review does not qualify as human subject research under federal human subject research regulations (IRB-2023–1656). Results will be published in a peer-reviewed journal and in the form of a one-page summary for extension programme leaders, part of a nationwide Cooperative Extension network.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The proposed scoping review will include both qualitative and quantitative studies, providing a more complete picture of the availability of empirical evidence of moderation.
⇒ The electronic database search was designed and pilot-tested to ensure high sensitivity and reliability while balancing time and cost constraints.
⇒ We will analyse data by mapping the empirical evidence of moderation to theory-derived moderation hypotheses.
⇒ Given that an assessment of the risk of bias of the studies included in the proposed review will not be conducted, the specific clinical and policy implications of the proposed review may be limited.

INTRODUCTION

Evaluation and reduction of concerns about falling and the promotion of physical activity are two fundamental aspects of fall prevention and management.[1] Although regular engagement in physical activity and adherence to multicomponent physical activity programmes can reduce concerns about falling and prevent falls, concerns about falling may represent for many a barrier to physical activity participation.[2–5] This is an important public health issue because both fallers and non-fallers in various adult populations are concerned about falling, and such concerns can interfere with participation in various activities of daily living and reduce quality of life. Ultimately, concerns about falling may increase the risk of future falls and care dependency, which can both be further heightened by physical inactivity.[1]

Concerns about falling tend to be negatively associated with physical activity participation. However, concerns about falling may not uniformly influence physical activity behaviour across populations and contexts.[6] For instance, concerns about falling may have a stronger negative association with physical activity participation among older adults, people with disease-specific symptoms and disabilities or people with a history of falls.[5 7 8] Moreover, theoretical[9–11] and qualitative[3] evidence indicate that concerns about falling could positively relate to physical activity in certain contexts.

In this article, we propose a scoping review protocol to guide a summary of the bodywork

that has examined the association between concerns about falling and physical activity in adult populations (age≥18 years), with an eye on the availability of empirical evidence of moderation, also known as effect modification. In the context of the proposed scoping review, moderation represents the variation in the degree to which concerns about falling relate to physical activity as a function of another factor, called a moderator variable. Specifically, a moderator is a variable that changes the direction (sign) or magnitude (size) of the relation between concerns about falling and physical activity behaviour. We expect the findings of the proposed scoping review to make a significant contribution to the literature by encouraging researchers to specify variables as moderators of the relation between concerns about falling and physical activity behaviour at the onset of their studies and make sampling and measurement-related decisions that would enable them to perform more sensitive moderation analyses. It is also expected that these findings will help researchers to provide a more compelling rationale for the a priori planning and conduct of subgroup and meta-regression analyses of future meta-analyses. Ultimately, the proposed scoping review is expected to provide new insights that could help practitioners and researchers determine more precisely for whom and when concerns about falling should be considered for promoting physical activity more effectively in the context of fall prevention and management.

Rationale

According to the social cognitive framework, concerns about falling could be linked to the construct of beliefs[12 13] or representations[14] about a health threat. Beliefs or representations about a health threat are thought to be linked to one's motivation to either adopt or avoid certain behaviours. Specifically, the construct of threat appraisal is theorised to capture one's held beliefs about a health threat (eg, consequences of falling such as pain, injury or loss of independence) and its association with negative emotions (eg, concerns, worry, fear or anxiety[15]). The concept of concerns about falling has been explicitly linked to the construct of threat appraisal in prior research in the context of physical activity in older adults.[16 17] Further, both the protection motivation theory[13] and common sense model[14] posit a stronger and positive relationship between threat appraisal (eg, concerns about falling) and people's intention toward a given behaviour (eg, physical activity) for people who believe in the effectiveness of that behaviour in preventing the threat (eg, engaging in balance and strengthening exercise is an effective strategy to prevent injurious falls) and in their capabilities in engaging in that behaviour (eg, self-efficacy for engaging in balance and strengthening exercise). This perspective is also consistent with the conceptual framework describing the origination and consequences of worries about falling by Ellmers *et al*,[18] which specifies the perception of control over one's concerns about falling as a key factor determining whether concerns about falling motivate positive and protective changes in behaviour.

According to the affect and health behaviour framework, concerns about falling could be linked to the concept of incidental affect.[10] Incidental affect refers to how one feels throughout the day outside the context of the target behaviour. According to this perspective, concerns about falling can positively influence physical activity, but only if one expects that engaging in physical activity will contribute to alleviating their concerns about falling. Otherwise, concerns about falling will negatively influence physical activity. In contrast, concerns about falling can lead to excessive physical activity avoidance if people anticipate avoiding physical activity will help them cope with such concerns and protect them against potential harms from future falls.

Drawing on this same theoretical framework, concerns about falling could also be linked to the concept of affectively charged motives.[10] Affectively charged motives represent a category of motives that arise from the feelings experienced while performing a given behaviour. According to this perspective, concerns about falling can reflect a more intense emotion, such as fear or anxiety, that would drive one to disengage from physical activity experiences that previously have been associated with negative emotions. This perspective is also consistent with the model of fear of falling, fall efficacy and anxiety[9] and the fear-avoidance model of falling and functional disability.[11] One important implication of this perspective is that the influence of concerns about falling on physical activity can be highly contextual. If past experiences of physical activity have been unpleasant because one fell while doing an activity—leading one to experience pain, an injury or a loss of independence—concerns about falling can prompt people to either avoid all kinds of physical activities, the specific activity associated with the fall or the performance of physical activity in the specific context in which the fall occurred (eg, avoiding the performance of physical activity under poor weather conditions, such as walking on an icy sidewalk).

Findings from prior knowledge syntheses provide converging evidence in support of a negative association between concerns about falling and physical activity behaviour.[2 3 5 7 19–21] Ramsey *et al*[2] calculated the median Pearson correlation coefficient quantifying the strength of the association between fear of falling and daily steps (r=−0.21) and daily minutes of moderate-to-vigorous physical activity (r=−0.24) among older adults (≥60 years). Using benchmarking methods outlined by Wright *et al*,[22] these estimates indicate that older adults who are fearful of falling would typically take 321 fewer steps per day (or 2247 steps/week) and spent 12.6 min less in moderate-to-vigorous intensity physical activity per day (or 88.2 min/week) compared with those who are not fearful.

Despite evidence that the size or sign of the association between concerns about falling and physical activity behaviour can depend on another factor, most prior knowledge syntheses merely assumed that concerns about

falling uniformly influence that behaviour across populations and contexts. There are a few notable exceptions, however. First, Beart *et al*[7] hypothesised that the negative influence of concerns about falling on physical activity might be stronger as people age, especially among people aged 80 years and over. Second, Rider *et al*[8] hypothesised that Parkinson's disease-specific symptoms and disabilities could moderate the impact of concerns about falling on physical activity behaviour such that the negative influence of concerns about falling on physical activity would be stronger when people have increased walking difficulties, hyperkinesia, rigidity, freezing of gait or impaired balance. Lastly, both systematic reviews of the qualitative literature by Franco *et al*[5] and Meridith *et al*[3] concluded that for many older adults (≥60 years), the influence of concerns about falling on physical activity participation was negative but depended on one's prior fall history or context. A history of falls could strengthen the negative influence of concerns about falling on physical activity,[5] whereas concerns about falling could promote engagement in certain types of exercise when performed with the overall goal of improving physical functioning or reducing the risk of future falls.[3] Lastly, there is empirical evidence indicating that women (compared with men) may show a greater tendency to restrict their activities to protect themselves against potential harms from future falls.[23 24]

In summary, there is theoretical evidence and hypotheses in support of moderation, whereby the direction (sign) or magnitude (size) of the association between concerns about falling and physical activity may depend on another factor, called a moderator variable. These potential moderators are specified in table 1.

Table 1 Hypothesised moderators of the relation between concerns about falling and physical activity behaviour

Moderator	Sign and size of the effect modification
Age	
For people who are older (relative to younger people), especially for those aged 80 years and over.	Sign: negative Size: larger
Beliefs about capabilities	
For people who hold the belief that they can organise, execute and engage in physical activity despite the presence of barriers.	Sign: positive
Beliefs about consequences	
For people who hold the belief that physical activity is an effective strategy for preventing falls.	Sign: positive
For people who hold the belief that physical activity will help them relieve their concerns about falling.	Sign: positive
For people who hold the belief that avoiding physical activity will help them reduce their concerns about falling and protect them from future falls.	Sign: negative Size: larger
Biological sex/gender	
For women (compared with men)	Sign: negative Size: larger
Disease-specific symptoms and disabilities	
For people with disease-specific symptoms or a disability	Sign: negative Size: larger
History of falls (within context)	
When past experiences of physical activity have been unpleasant because one fell while doing an activity.	Sign: negative Size: larger

Prior knowledge syntheses

Most prior knowledge syntheses only included studies that sampled older adults (≥60 years).[2–5 7 25 26] Although insightful, the generalisability of their findings to other populations for which concerns about falling and fall prevention and management have important clinical implications cannot be inferred. Notably, one narrative knowledge synthesis[21] concluded that there is a 'probable negative association' between fear of falling and physical activity behaviour among people who had a transient ischaemic attack or stroke (table 1; p. 62). Rider *et al*[8] performed a scoping review of studies examining the association between fear of falling and activity avoidance among people with Parkinson's disease and reported that concerns about falling 'emerged with a strong association with avoidance behaviour' (p. 12). Based on the findings from two studies, Streber *et al*[20] concluded that fall-related efficacy (higher levels of fall-related efficacy reflect lower levels of concerns about falling) was 'consistently positively associated with physical activity (in persons with multiple sclerosis) but was less frequently examined' (p. 639).

Moreover, although some knowledge syntheses specifically focused on the concept of physical activity,[2 3 19–21] others were based on a broad conceptualisation of the concepts 'activity restriction', 'activity avoidance' or 'activity level'.[4 8 25 26] These concepts typically encompass a wide range of activity-related outcomes such as engagement in activities of daily living, motor skills or mobility assessments, engagement in social activities, church attendance and physical activity. As a result, it is difficult to delineate the findings that pertain specifically to physical activity from other activities or behaviours.

Scoping review objectives

We propose to conduct a scoping review to map the research pertaining to the association between concerns about falling and physical activity behaviour in adult populations, with an eye on the availability of empirical evidence of moderation. A preliminary search for existing scoping review reporting on evidence of moderation for the association between concerns about falling and physical activity behaviour in adult populations (≥18 years) revealed that none exist (date of the search: 11 May 2023;

electronic database searched: CINAHL (EBSCO interface), EMBASE (Elsevier interface), PubMed, PsycINFO (EBSCO interface) and SPORTDiscus (EBSCO interface)). The primary research question of the proposed scoping review is, what literature exists on evidence of moderation of the association between concerns about falling and physical activity in adult populations (age≥18 years)? We propose two subquestions:

1. What range of evidence there is within the sources of evidence identified for the primary research question with respect to research methodology and selected attributes of the research design?
2. Which factors have been identified as a moderator within the sources of evidence identified for the primary research question?

METHODS AND ANALYSIS

This scoping review protocol was developed following the guidance of the scoping review framework proposed by the JBI Manual for Evidence Synthesis.[27 28] The reporting of this scoping review protocol follows the reporting guidelines for scoping review protocols[27] and is consistent with the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P[29]). An adapted version of the PRISMA extension for Scoping Reviews (PRISMA-ScR) checklist based on the reporting guidelines for scoping review protocols[27] is provided in online supplemental appendix 1.

We will conduct the proposed scoping review in accordance with the scoping review framework outlined by the JBI Manual for Evidence Synthesis.[28 30] The reporting of the proposed scoping review will follow the PRISMA-ScR[31]. Any deviations to the protocol, along with their respective justification, will be reported in the final scoping review report.

Eligibility criteria

Participants

Studies that report on samples with a mean age ≥18 years will be included for review. Studies that have drawn on samples of either recreational or professional athletes and people who were unable to engage in physical activity will be excluded.

Concepts

Concerns about falling

Several facets closely related to the concept of concerns about falling were examined in prior research,[6] including fear of falling and falls efficacy.[9 11 15] Fear of falling refers to a more intense, lasting concern about falling (eg, feeling more anxious, fearful or worried), whereas falls efficacy refers to the perceived capability in keeping balance or in preventing falls while performing various activities of daily living (eg, going up or down the stairs and walking up or down a slope). While concerns about falling may arise because of a fall, such concerns can also exist without a prior history of falling. Although there exists a variety of terms related to the description of the psychological (anticipated or actual) effects of a fall, the 2022 World Falls Guidelines for falls prevention and management for older adults recommend the use of the term concerns about falling.[1]

Physical activity

Physical activity is an umbrella term used to describe any human movement produced by the contraction of skeletal muscles that raises energy expenditure above resting metabolic rate (ie, 1 Metabolic Equivalent of Task (MET)).[32] Four main domains or types of activity have been identified: leisure-time physical activity; work- or school-related activity; household, domestic or self-care activities and activity for transport from place to place.[33] In addition to frequency and type of activity, physical activity behaviour is also characterised by its duration (eg, minutes/week), intensity (eg, light, moderate and vigorous) and mode (eg, aerobic, muscle strengthening and bone strengthening activities). The concept of physical activity is inclusive of the concepts of exercise and sport. Exercise refers to physical activity that is planned, structured and repetitive for the purpose of enhancing or maintaining physical fitness and health.[32] Sport refers to physical activity that is rule-governed, structured and competitive and involves gross motor movement characterised by physical strategy, prowess and chance.[34] However, the concept of physical activity does not encompass the concept of sedentary behaviour.[33] Sedentary behaviours are defined as any waking behaviours characterised by an energy expenditure≤1.5 METs, while in a sitting, reclining or lying posture.[35]

Types of evidence sources

The proposed scoping review will draw on data from studies that have used a qualitative, quantitative or mixed methodological approach. Irrespective of the methodological approach, we will include studies that have used cross-sectional, longitudinal, quasi-experimental and experimental designs. Knowledge synthesis of any type, conference abstracts, commentaries, editorials, study protocols, thesis and dissertation, books and book chapters and case studies will be excluded.

Search strategy

The search strategy was developed by the review team, which includes a database expert and health science information specialist. The health science information specialist and database expert implemented and executed an initial electronic databases (coverage period) search strategy for CINAHL (EBSCO interface; 1976–present), EMBASE (Elsevier interface; 1947–present), PsycINFO (EBSCO interface; 1887–present), PubMed (1946–present) and SPORTDiscus (EBSCO interface; 1930–present). For all databases, search terms taping on both the concept of concerns about falling and physical activity were used. Because the population of interest for this scoping review is the adult population (≥18 years), no age filters were used in any of the databases. Additionally, we

Box 1 Example of database search for PubMed

1. "Fear"[MeSH Terms] OR "Avoidance Learning"[MeSH Terms] OR "Self Efficacy"[MeSH Terms]
2. "fear"[Title/Abstract] OR "fears"[Title/Abstract] OR "concern"[Title/Abstract] OR "concerns"[Title/Abstract] OR "confidence"[Title/Abstract] OR "accidental"[Title/Abstract] OR "efficacy"[Title/Abstract] OR "beliefs"[Title/Abstract] OR "avoidance"[Title/Abstract] OR "confident"[Title/Abstract] OR "threat"[Title/Abstract] OR "threats"[Title/Abstract] OR "afraid"[Title/Abstract] OR "worry"[Title/Abstract] OR "worries"[Title/Abstract] OR "worried"[Title/Abstract] OR "fearful"[Title/Abstract] OR "frightened"[Title/Abstract] OR "concerned"[Title/Abstract] OR "post fall syndrome"[Title/Abstract] OR "ptophobia"[Title/Abstract] OR "scared"[Title/Abstract]
3. #1 OR #2
4. "Accidental Falls"[MeSH]
5. "falling"[Title/Abstract] OR "falls"[Title/Abstract] OR "fall"[Title/Abstract] OR "balance"[Title/Abstract]
6. #4 OR #5
7. "Activities of Daily Living"[MeSH Terms] OR "Exercise"[MeSH Terms] OR "Walking"[MeSH Terms] OR "Sports"[MeSH Terms]
8. "exercise"[Title/Abstract] OR "physical activity"[Title/Abstract] OR "physical fitness"[Title/Abstract] OR "step count"[Title/Abstract] OR "walking"[Title/Abstract] OR "mobility"[Title/Abstract]
9. "Activity"[Title/Abstract] OR "activities"[Title/Abstract]
10. "Daily living"[Title/Abstract] OR "level"[Title/Abstract] OR "levels"[Title/Abstract] OR "avoidance"[Title/Abstract] OR "intensity"[Title/Abstract] OR "restricted"[Title/Abstract]
11. #9 AND #10
12. #7 OR #8 OR #11
13. #3 AND #6 AND #12

used database-specific index or Medical Subject Headings (MeSH) terms when available. The free-text search terms remained constant across all databases, searching across title, abstract and, when available, keyword fields. We updated the database-specific terms for each database, where available, but used the same key concepts across all the databases. We used filters for resource types (ie, Academic Journals) in two of the EBSCO databases (SPORTDiscus and PsycINFO) because of the indexing of periodicals in EBSCO. We will not use this option for CINAHL because the filter was experiencing technical difficulties when pilot-test searches were run. No date or language filters were used. Full details of an example electronic search for PubMed are presented in box 1.

To identify additional studies, two reviewers will independently perform a hand search of the reference lists for all included studies for review and relevant knowledge syntheses.[2–5 7 8 19–21 25 26] Lastly, we will perform a citing reference search for all included studies using Web of Science. The results of the search will be reported in a PRISMA-ScR flowchart.[31]

Studies written in any language will be included. The title and abstract of any potential studies that are reported in a language other than English will be initially translated using Google Translate. The full text will be translated by a qualified translator if it meets the inclusion criteria at that stage. It is worth noting that at least one member of the review team has high proficiency in English, French and Korean. We will place no constraints on the publishing year of the studies. We will use Covidence, a web-based software platform, to manage the retrieved citation records (Covidence systematic review software, Veritas Health Innovation, Melbourne, Australia).

Source of evidence selection

We ran an initial electronic database search on 23 May 2022, which yield a total of 24 359 records (k). We will update the electronic database search before formally implementing our final, complete search strategy. We will not use any automation tools for study selection.

Screening of titles and abstracts

Given the high number of identified records through our initial electronic citation search (k=24 359) and the related time and cost constraints associated with their screening, we assembled a team of six reviewers that will single-screen titles and abstracts using an overinclusive approach. Specifically, a given record will be retained and considered for full-text examination if there is insufficient information to conclude with certainty its exclusion. The specific exclusion criteria considered at this stage were conference abstract, review article, case report/series, not human research, ineligible age group (<18 years) and not reporting on either the concept of physical activity or the concept of concern about falling. We used a two-step process for pilot-testing the titles and abstract screening procedure. First, a random sample of 100 records from our initial search was selected and independently screened for eligibility by two review members. The decisions were compared, and discrepancies among the two reviewers were resolved by discussion. At the end of this first step, the reviewers disagreed on only two studies, and both reviewers agreed to exclude both after discussion. Second, another random sample of 100 records was selected and independently screened for eligibility by four reviewers. Then, one of the reviewers involved in the first step described above met with the four reviewers to provide training and discuss screening decisions. On pilot-testing the process of screening titles and abstracts and given the number or records to screen, the review team decided that all titles and abstracts would be screened by a single reviewer, one of the six involved in pilot-testing titles and abstract screening procedure. The single screening of the titles and abstracts can yield high sensitivity (98–100%) when certain exclusion criteria are used—such as conference abstract, review article, case report/series, not human research and ineligible age group (<18 years)[36]—and is acceptable at this stage of the selection process.[36 37]

Full-text examination

We will retrieve the full text of the records selected for inclusion at the title and abstract screening stage. Two reviewers will independently assess the eligibility of each

article. Multiple articles reporting on the same study and written by the same author group will be gathered and scrutinised to ensure that only a unique study, rather than each article or duplication study, represents the unit of interest in the scoping review. When necessary for the making of a selection decision, we will contact the authors of the articles for unpublished information. The decisions to include an article will be compared between the two reviewers, and discrepancies between reviewers will be resolved by discussion. When no consensus can be reached, a third reviewer will help resolve the discrepancy. Moreover, any relevant retraction statements and errata for information for each included article will be examined to exclude data from studies that are fraudulent or studies that include errors. We will report reasons for exclusion of full-text articles that do not meet the eligibility criteria in a supplementary document in the scoping review.

Data extraction

Prior to data extraction, two reviewers will independently pilot-test a purpose-built data extraction sheet with three randomly selected records. An initial version of the purpose-built data extraction sheet is provided in online supplemental appendix 2. Reviewers will collect information about the characteristics of the study (ie, authors, year of publication, origin/country of origin and aims/purposes), population and sample (ie, sample size, mean age and range, percentage of women/female, race/ethnicity characteristics, health status and settings—eg, community, nursing home and medical facilities), the concept of concerns about falling (eg, measurement instrument used and facet measured) and the concept of physical activity (eg, measurement instrument used and facet measured). Reviewers will extract relevant information regarding all types of physical activity—all physical activity measurement metrics (eg, frequency, duration, volume, number of steps and arbitrary activity units) will be considered, as well as the measurement by means of device-based (eg, accelerometer) and self-report (eg, questionnaires) instruments. For each study included, we will collect findings pertaining to evidence of moderation. Specifically, we will identify if a moderating factor was investigated (yes/no) and specify the theoretical approach underlying the investigation (if any), methodological approaches for investigating moderator effect (eg, qualitative, quantitative or mixed methods), the results pertaining to moderation and the main conclusion of the study.

It is expected that the data extraction sheet will be refined and revised following the pilot-testing of the data extraction process. After pilot-testing of the data extraction sheet, we will hold a meeting with all scoping review authors to discuss all aspects of the revised version of the data extraction sheet and agree on its final version. Then, two reviewers will independently extract data from all included studies, compare results and resolve any discrepancies through discussion. We will contact the study authors for clarification on unreported data items. When no consensus on reported data items can be reached, we will contact the study authors to help resolve the discrepancy. We will hold bi-weekly meetings throughout the data extraction process to discuss progress and monitor whether the data extraction sheet is capturing all the essential information to properly answer the research questions.

Data analysis and presentation of results

Primary study and sample characteristics will be reported for descriptive purposes in a summary table. We plan to use iconography to display the different types and number of samples drawn by the included studies. Moreover, we plan on using a waffle chart to illustrate the type of research methodology used within the included studies (ie, qualitative, quantitative and mixed methods).

We will analyse the data descriptively and report the frequency count and percentage of studies investigating and reporting on evidence of moderation. Further, data will be charted, categorised and summarised by mapping the data pertaining to the evidence for and against moderation to each of the hypothesised moderators outlined in table 1. This will be applied to all studies, irrespective of the methodological approach or research design. Prior to mapping the evidence of moderation, the review authors will familiarise themselves with the data by reading and understanding all the included studies for review and understanding the relevance of the data in relation to the main scoping review question. Results of this qualitative synthesis will be presented using a tree graph to display the moderating factor(s) investigated by the included studies, and a ratio showing the number of time evidence for moderation was reported by the total number of investigations.

We will perform a narrative synthesis of the findings to highlight similarities and differences both within and across studies by examining the convergence and divergence in findings across methodological approaches, the concepts of concerns about falling and physical activity behaviour and sample characteristics.

Patient and public involvement

Patients or the public were not involved in the design, or conduct, or reporting or dissemination plans of our research.

ETHICS AND DISSEMINATION PLAN

The Purdue University Human Research Protection Program determined that the proposed scoping review does not qualify as human subject research under federal human subject research regulations (IRB-2023–1656).

The results of this proposed scoping review will be disseminated through various means. First, we will disseminate the study findings through a peer-reviewed scientific journal and presentation at a scientific conference. Second, we will disseminate the findings in the form of

a one-page summary, in plain language, via written briefs or e-newsletters to extension programme leaders, part of a nationwide Cooperative Extension network. We also plan to present posters or e-posters at the national Health Extension annual conference. Extension programme and community leaders attend training sessions during this conference. They represent an important group of end users as many of them deliver to members of their community evidence-based programmes to reduce concerns about falling and promote physical activity (eg, *A Matter of Balance*, *Stepping On* and *Fit & Strong!*) with the overall objective of preventing and managing falls.

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Contributors All listed authors have contributed and will continue to contribute meaningfully to the conduct and reporting of the proposed scoping review. SA and JBR conceived the proposed review. SA and JBR developed the search strategy, and JBR ran the initial electronic databases. SA, EAC, ERJ, HR, RCK and JBR are the six title and abstract reviewers. KJM is an extension specialist, with experience in delivering programmes to reduce concerns about falling and promote physical activity to midlife and older adults, who will provide insights on the usefulness of the scoping review findings to practitioners. In addition, KJM will help identify language barriers in the reporting of the scoping review results. All authors read the final protocol manuscript and revised it for content; all approved the final version. SA is responsible for the overall content as guarantor.

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