

BMJ Open Nursing, frailty, functional decline and models of care in relation to older people receiving long-term care: a scoping review protocol

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ABSTRACT

Introduction Older people receiving healthcare in long-term care contexts (eg, home healthcare, sheltered housing and nursing home contexts) are especially vulnerable to developing frailty and functional decline. Considering the negative effects associated with these conditions and the possibility of preventing them from progressing, it is vital that nurses possess a broad knowledge base related to them. Particularly as prevention related to these conditions lies well within their remit. Such knowledge could guide the development of effective models of care, ensuring continuity and, hence, quality of care. Our objective will be to review published literature on existing models of care targeting frailty and/or functional decline and how these conditions are described by older people themselves, significant others and nurses in relation to long-term care.

Methods and analysis The scoping review will be conducted in accordance with Arksey and O'Malley's methodological framework. Recent methodological developments will be considered. PubMed, CINAHL and PsycINFO will be searched. Eligibility criteria will be peer-reviewed papers and written in English. All types of study designs will be eligible and included papers will be quality and ethically assessed. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)-Protocol checklist for protocols and the PRISMA for Scoping Reviews checklist were followed in this paper.

Ethics and dissemination As the study outlined in this protocol is a scoping review, no ethics approval was needed for this protocol nor for the upcoming study. The findings will be published in an open-access, peer-reviewed journal. Additionally, the findings will guide a research project following the Medical Research Council's framework for developing and evaluating complex interventions. Thus, supporting us in developing a model of care related to the detection and prevention of frailty and/or functional decline among older people in a long-term care context.

INTRODUCTION

Considering the potential adverse health outcomes of frailty and functional decline,^{1 2} as well as the potential reversibility of these conditions,³ there is an undeniable need for

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Designing and reporting the protocol and upcoming scoping review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklists will ensure the transparency, reliability and rigour of the review.
- ⇒ The support of an information specialist in developing a comprehensive search strategy will ensure a higher probability of identifying eligible papers.
- ⇒ Using a review team of five individuals will ensure independent assessment by two reviewers in all stages, as well as the opportunity to consult with a third person if necessary.
- ⇒ Adopting a joint strategy of quality assessment and comprehensive overview may contribute to both identifying the gaps in the literature, as well as increasing the uptake and relevance of the results for practice and policy-makers.
- ⇒ Not including stakeholders in the conception and designing of this review might be a limitation.

effective models of care for the early detection and prevention of frailty and functional decline among older people in long-term care contexts (eg, home healthcare, sheltered housing and nursing home contexts).^{4 5} Preventing frailty and functional decline as a part of a healthy ageing strategy is a globally important aim and has been promoted by both the European Commission and WHO.^{6 7} Despite their global attention, both conditions are repeatedly described as closely related, and the terms are often used interchangeably.^{8 9} The nature of their relationship has been debated, even though the consensus appears to be that frailty predicts functional decline and disability.^{3 10} Our upcoming scoping review will depart from the idea of such a relationship.

It is well known that we live longer and, hence, are at an increased risk of multimorbidity, polypharmacy and the presentation



of complex symptoms.¹¹ This indicates that the number of older people with frailty and at risk of functional decline^{8 11 12} also is likely to substantially increase. The prevalence of frailty tends to vary, which might be because of the use of numerous definitions and screening instruments but also because frailty tends to increase with age.¹³ Among community-dwelling older people (60+), the prevalence of frailty has been estimated to be between 2.6% and 60%^{14 15} and for nursing home patients between 19% and 75.6%.^{15 16} Frailty has also been associated with increased healthcare-related costs.¹⁷ The early detection and preventative healthcare measures targeting these two conditions in long-term care contexts seems vital both for the healthcare offered and the quality of care for older patients. Unfortunately, such measures are challenging for several reasons.

First, older people receiving healthcare services in long-term care contexts are a heterogeneous population; they range from being relatively independent and in need of low-intensity care to being dependent on a range of activities of daily living (ADL) and in need of high intensity care.¹¹ Furthermore, it is fair to assume that through, for example, informal caregivers, these individuals' deteriorations might be compensated for and delayed over a longer period of time, thereby masking their actual care needs. This complex composition within both the population and the individuals themselves—masking actual care needs—increases the risk of adverse health outcomes because of the difficulties to detect the conditions.

Second, there is a growing number of older people ageing in place—that is, staying in their own homes.¹⁸ This trend is believed to contribute to appropriate care at a lower cost compared with institutionalised care.^{19 20} Furthermore, according to Boland *et al*,²¹ there is insufficient evidence related to health-related outcomes to recommend either institutionalised care or home healthcare. Emphasising the preference of the older person when considering moving the locations of care should be taken into account. Research implies that most older people value their independence and prefer to remain in a familiar environment where they feel like they belong.¹⁸ Stressing the importance of detecting and preventing conditions such as frailty and/or functional decline early on in this population. This might result in positive implications when it comes to their possibility for healthy ageing^{6 22} and contribute to more older people having the choice of ageing in place.^{18 22 23} However, it has been documented that long-term care services experience limitations related to the following: time with patients, number of healthcare staff with adequate competence, collaboration with other professions, guidelines and protocols for care, high rates of sick leave, part-time workers and nurse retention.^{23–25} This might increase the risk of nursing staff (eg, registered nurses, registered practical nurses, licensed practical nurses and nursing assistants/aides)²⁶—hereafter referred to as nurses—being forced to ration care.²⁷ This may result in patient monitoring being less prioritised and a further rationing

of care that might lead to the signs and symptoms related to frailty and/or functional decline going unobserved. This can risk both patient safety and satisfaction.²⁸

Third, a prerequisite for detecting and preventing frailty and/or functional decline is a clear definition and understanding of the concepts, both medically and clinically. A number of definitions have been proposed, yet no consensus exists.^{9 29} In the upcoming scoping review, frailty will be understood in accordance with Clegg *et al*'s³⁰ description as 'a state of vulnerability to poor resolution of homeostasis after a stressor event and is a consequence of cumulative decline in many physiological systems during a lifetime' (p. 1). A critical point in the degenerative processes is reached where the homeostatic mechanisms are no longer sufficient. This results in vulnerability, that is, a seemingly small incidence (new drug or a 'minor' infection), having a disproportionate effect on the individual's health.³⁰ This then increases the risk of adverse health outcomes such as falls, hospitalisation, disability and death.¹² Furthermore, the dependency in ADLs in people with frailty may fluctuate substantially. This is often referred to as 'unstable disability',³⁰ and we postulate that such fluctuating disability could be understood as functional decline.

For the upcoming review, functional decline will be defined as a new loss of independence in self-care activities or as a deterioration in self-care skills, here as measured on an ADL scale (eg, bathing, dressing, transferring from bed to chair, using the toilet) and/or on an instrumental ADL scale (eg, shopping, housekeeping, preparing meals).^{31 32} Functional decline among older people can also result in compromises beyond ADL, for example, physical problems such as falls and malnutrition and psychosocial problems such as depression and delirium.³³ According to Hébert,³⁴ functional decline may manifest subacutely or acutely. Subacute functional decline slowly develops over time and is more difficult to detect than acute functional decline, particularly if the patients are not screened for physical or mental capacity changes. Usually, this is caused by chronic disease or a new, undetected disease, but it may also arise because of polypharmacy, cognitive decline or a psychiatric condition. Acute functional decline often manifests in a couple of days to a week and requires emergent medical attention and hospitalisation. It can be caused by an acute incident (eg, infection, fall or stroke), malfunction in compensatory mechanisms of a chronic condition or a psychological crisis (eg, death of a significant other or hospital admission).

Among healthcare professionals, nurses are the largest professional group. They are often the first point of contact, and they are also the group that spends the most time with the patients. Thus, the management of care, including detecting and preventing the signs and symptoms of frailty and/or functional decline, lies both within their remit and range of responsibilities. Despite this, we have not been able to identify any published reviews summarising the evidence within this field. Instead,

recent reviews have focused on areas such as the effect of interventions^{35–38} and screening tools.^{39–41} Furthermore, we might argue that to develop effective models of care related to these conditions, it is critical to understand how frailty and functional decline might be described beyond our medical understanding and by important stakeholders.

Additionally, nurses are expected to provide a diverse range of healthcare services, and one of their functions is to assess, diagnose, intervene and evaluate a patient's personal health needs.^{42–43} Consequently, nursing staff can play a major role in delivering a safe and evidence-based practice that involves detecting and establishing appropriate care actions for older people, regardless of their conditions. Working in accordance with structured and logical (effective) models of care to detect, prevent or postpone frailty and/or functional decline among older people in long-term care is vital. Hence, our objective will be to review the literature on existing models of care, frameworks, patient care pathways and/or clinical practice guidelines targeting frailty and/or functional decline, as well as how these two conditions are described by key stakeholders (eg, older people themselves, their significant others and nurses) in relation to long-term care.

Method and analysis

The upcoming scoping review will be conducted in accordance with Arksey and O'Malley's⁴⁴ methodological frameworks for conducting scoping studies stage 1–5. Thus, leaving out the optional stage regarding consultation with stakeholders and experts. Additionally, methodological developments will be considered, that is, Levac *et al*⁴⁵ and Daudt *et al*.⁴⁶ As the topic of interest for the upcoming study is broad and complex in nature, in addition to the lack of previously comprehensive reviews, a scoping review design is deemed appropriate.⁴⁴ This design allows for inclusion of a diverse range of study designs and papers of differing levels of quality. Furthermore, the iterative methodological process offers us the opportunity to revise our research questions (ie, remove, amend or add questions) as we gain more familiarity with the research area.⁴⁴ During the search processes, the final inclusion and exclusion criteria will be decided on. This might mean excluding certain conditions or specific forms of care (eg, palliative care or stroke), change of population and specification of the context. This flexibility is important when reviewing a topic as broad, uncharted and complex as ours. The iterative approach allows us to start out with broad research questions. This is favourable as we aim to summarise the research findings in our research area as well as to create an overview of both gaps in the literature and of areas which have been thoroughly researched.⁴⁴ The included papers will undergo ethical and critical appraisal,^{45–48} relevant data will be extracted,^{45–49} and data answering the review questions will be analysed by content analysis.⁵⁰

This protocol will use the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Extension for Scoping Review checklist,⁵¹ as well as the PRISMA-Protocol checklist for reporting protocols (online supplemental files 1–2),⁵² which is recommended for scoping reviews and systematic reviews.⁵³ As recommended, the upcoming review is registered in the Open Science Framework (OSF) (registration number 10.17605/OSF.IO/FNHSA. Registered and last updated on 30 June 2021). Following this registration, the preparations for the review started with the writing and submission of this protocol, including preliminary searches and submitted in January 2022. The database searches were finalised and run in late June 2022. All searches were thereafter downloaded to Rayyan and the inclusion and exclusion process of eligible papers will start mid-August. The tentative end time for the scoping review will be December 2022–January 2023.

Stage 1: identifying the research question

In accordance with Arksey and O'Malley⁴⁴ tentative and broad research questions were formulated following the PICoS (Population, Phenomenon of Interest, Context and Study design) framework (table 1). In accordance with the iterative approach of a scoping review, the tentative research questions may be reformulated as we gain familiarity with the research area.⁴⁴

- ▶ What models of care, frameworks, patient care pathways and/or clinical practice guidelines targeting the detection and prevention of frailty and subsequently functional decline among older people are described in relation to long-term care?
- ▶ How is the condition of frailty described by key stakeholders in long-term care?
- ▶ How is the condition of functional decline described by key stakeholders in long-term care?

Furthermore, subquestions will encompass the following: By whom are the questions in the literature answered, in what specific contexts, in relation to whom

Table 1 PICoS framework for determination of eligibility of review questions

Criteria	Determinants
Population	Older people (65+years) Significant others Nurses ²⁶
Phenomenon of Interest	Descriptions of models of care, frameworks, patient care pathways and/or clinical practice guidelines targeting the detection and prevention of frailty and/or functional decline among older people Descriptions of frailty and/or functional decline among older people
Context	Long-term care, for example, home healthcare, sheltered housing and nursing homes ^{4,5}
Study design	All study designs

or what? Which research designs have been utilised? How is the methodological quality appraised?

Stage 2: identifying relevant studies

Systematic searches will be conducted in PubMed, CINAHL and PsycINFO. These databases cover the majority of the published, peer-reviewed health service research. The search strategies will be constructed following the PICoS categories and will be tailored to each database. To achieve a comprehensive search strategy with sensitivity and specificity, we will include both controlled subject headings such as MeSH,⁵⁴ as well as keywords and synonyms. No time limitation will be implemented because of the lack of earlier reviews and the aim to comprehensively map the area of interest.⁴⁴ A preliminary search strategy was constructed for PubMed in collaboration with an information specialist at Karlstad University (online supplemental file 3, last updated on 19 January 2022). Additionally, the reference lists of all the included papers will be searched.^{44 54 55} To ensure transparency in the iterative process, the first author will keep a logbook throughout the entire project to track amendments from this protocol and other decisions made, including the rationale.^{55 56} Considering what types of research will most likely be relevant for answering our research questions, as well as the time and resources needed searching for grey literature,⁵⁵ we have decided to include only published, peer-reviewed research.

Stage 3: study selection

To ensure consistency, reliability and validity in the selection process, eligibility criteria will be constructed.⁴⁵ A tentative summary of the eligibility criteria is described below. Still, in accordance with the iterative process, the eligibility criteria might be refined as familiarity with the field increases and can then be applied to all citations post hoc.⁴⁴

Using the eligibility criteria, two independent reviewers will assess the relevance of all titles and abstracts in the search results. The full text of the relevant papers, as well as those where relevance is unclear, will be assessed for inclusion⁴⁴ by two reviewers.^{45 46} Meetings will be held regularly to address any uncertainties.⁴⁵ Disagreements will be resolved through discussion and, if necessary, consultation with a third reviewer. The selection process will be documented using the PRISMA flow chart⁵⁷ (figure 1). The data programme Rayyan will be used using the option 'blind on' to ensure an independent review.⁵⁸

The eligibility criteria relate to the categories in PICoS, as well as the research type, language and ethical considerations. The population will be limited to older people, their significant others and nurses. Older people will be defined as all people over the age of 65 years, considering that this is a standard cut-off for older people in most research and databases today. Significant others are tentatively defined as individuals with a close relationship to the older person, not defined by kinship or by being an unpaid carer. As previously stated, nurses will be

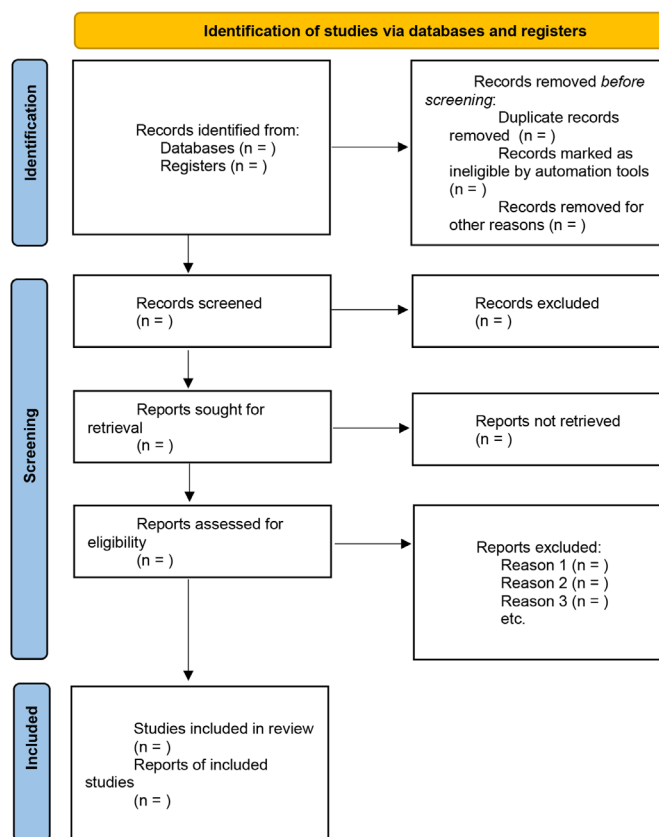


Figure 1 PRISMA flow chart: overview of the study selection process. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

defined as nursing staff (eg, registered nurses, registered practical nurses, licensed practical nurses and nursing assistants/aides).²⁶ Because there exists no consensus definition of frailty or functional decline, we will use the definitions presented in the introduction of this protocol as the inclusion criteria. The context will be defined as long-term care contexts, for example, home health-care, sheltered housing and nursing homes.^{4 5} All study designs will be included. Because the aim of the review is to summarise evidence from published, peer-reviewed research, we will exclude research types not complying with these parameters, such as letters to the editor and discussion papers. Considering time and resources, we will only include papers that do not need translation, that is, those in English. There is a rising appreciation of the contribution that ethical quality assessment in reviews may have on sustainable and ethical research.^{47 48} To contribute to this work, we have constructed a tentative list of the ethical requirements for the included papers, as influenced by Weingarten *et al.*⁴⁷ (table 2). Depending on the total number of eligible papers and the overall methodological and ethical quality, a decision regarding excluding papers of subpar standards will be made.

Stage 4: charting the data

A data charting form will be iteratively developed to facilitate the systematic charting of data. Tentative data charting items are shown in box 1, which will be iteratively

Table 2 Ethical requirements

Was the study approved by an ethical research committee?	Yes/no
Was informed consent retrieved from all participants?	Yes/no
Were the personal data/transcriptions/recordings properly managed, stored and disposed off?	Yes/no
Was the relevance of the study clearly justified?	Yes/no
Was any conflict of interests or funding declared?	Yes/no

developed throughout the review process. Two reviewers will develop and independently test the form on the first 5–10 relevant papers.^{45 49} Thereafter, two independent reviewers will apply the form to all included papers. Disagreements will be resolved by discussion with a third review team member.

Quality appraisal in scoping reviews is a topic of debate, with researchers both for^{45 46 59} and against it.^{44 49} Despite this all the included papers will be quality assessed but included regardless of the results. No weighting of the evidence will be done⁴⁴; rather, a quality assessment will be used to identify potential gaps in the literature related to high-quality research.⁴⁵ The quality assessment will be conducted by two independent reviewers using the checklists from the Critical Appraisal Skills Programme.⁶⁰ For mixed-method studies, the mixed method appraisal tool will be applied.⁶¹

Stage 5: collating, summarising and reporting the results

The charted data including the relevant findings from each included paper will be presented in both a schematic overview and as a narrative account. Numerical analysis of the quantitative data will be descriptive and focus on the nature, extent and distribution of the data.

Box 1 Tentative data charting items

Full reference (including authors, year of publication, journal, etc).
 Title
 Aim, objective and/or research question
 Population and participant characteristics (eg, total number of participants and number per subgroup, ie, older people, significant others and nurses. Age range for the older people and type of significant other, as for example spouse, child or neighbour. As well as type of nurse, such as registered nurse or nursing assistant)
 Phenomenon of Interest (eg, frailty, functional decline, both conditions, models of care, practice guidelines).
 Study context and country.
 Sampling method.
 Study design (eg, type of qualitative, quantitative or mixed/multiple methods).
 Data collection method (eg, individual interviews, focus groups or survey).
 Data analysis (eg, type of thematic analysis, content analysis, descriptive numerical analysis).
 Relevant findings (eg, themes, categories, numerical data, and outcomes, types of models of care, possible theoretical underpinnings).
 Quality assessment (the Critical Appraisal Skills Programme checklists⁶⁰ or the mixed methods appraisal tool).⁶¹
 Ethical assessment (see table 2)^{47 48}

How the results are presented will depend on the findings (eg, tables, chart and figures).⁴⁹ The qualitative data will most likely be analysed using qualitative content analysis,⁵⁰ as recommended by Levac *et al.*⁴⁵ Still, considering the iterative methodologically approach we might decide to change the method for qualitative analysis as we gain familiarity with the evidence. Irrespective of which method of analysis is chosen the focus will be on the manifest content. Using a descriptive approach and focusing on manifest content entails a very low degree of interpretation.⁶² This is in accordance with the aim of summarising—not synthesising—evidence in a scoping review.⁴⁴ Additionally, the Patterns, Advances, Gaps, Evidence for practice and Research recommendations reporting guidelines framework for scoping reviews will be used to secure the quality of our reporting.⁶³ Two reviewers will be responsible for this stage, and regular meetings will be conducted with the whole review team where decisions related to analysis and presentation of findings will be discussed and decided on.

Patient and public involvement

No patients were involved in the conception or design of the upcoming review.

ETHICS AND DISSEMINATION

Despite reviews being excluded from ethical assessment by ethical review authorities,^{64–66} the need for ethical considerations when conducting reviews has been highlighted by Vergnes *et al.*⁴⁸ and Weingarten *et al.*⁴⁷ Vergnes *et al.*⁴⁸ offers the following arguments pro ethical assessment: (1) raising awareness of the importance of upholding the high ethical standard in research with humans, (2) not basing practice on trials not following ethical principles, (3) respecting the conflict of interest statement as well as the financial disclosure, (4) discouraging publication of non-ethical research under the cover of ‘systematic review’ and (5) respecting confidentiality and informed consent. Additionally, as there is no consensus on how to assess ethical issues in reviews Weingarten *et al.*⁴⁷ have proposed the use of standardised protocols for assessing ethical aspects (eg, table 2). We will contribute to this by considering the ethical standards of all eligible papers.

Furthermore, to ensure an effective literature review, as well as avoid research waste,⁶⁷ we have conducted a thorough exploratory search to assess the need for the upcoming review. The ethical importance of writing this protocol should also be mentioned because protocols



alongside the precise logging of amendments in the final review manuscript are an important part of making our review transparent to criticism.

The scoping review will be published in a peer-reviewed, open-access journal. Tentatively, the findings will be reported by winter 2022. Additionally, the findings will be used in a research project following the Medical Research Council's framework for developing and evaluating complex interventions⁶⁸ to inform the development of a model of care related to the detection and prevention of frailty and/or functional decline among older people in a long-term care context.

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