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**Effectiveness of nurse-coordinated, person-centered comprehensive assessment on improving quality of life of community-dwelling frail older people: a systematic review protocol**

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**Abstract**

**Objective:** The objective of this systematic review is to determine the effectiveness of nurse-coordinated, person-centered comprehensive assessment on improving quality of life of community-dwelling frail older people.

**Introduction:** There is a growing need to meet the challenges of the increasingly frail and older population, and to provide proactive, holistic care close to home. A standardized assessment and care planning intervention could be implemented in primary care, which could be delivered by a primary or community healthcare nurse to address these challenges. However, it is not yet clear if an assessment and care planning intervention will improve outcomes for patients, such as quality of life.

**Inclusion criteria:** This review will consider studies that evaluate nurse-coordinated, person-centered, comprehensive assessment delivered in partnership with community-dwelling frail older people, and will compare the intervention to usual care. Studies that include people aged 60 years and older living at home or in supported living accommodation with a recognized level of frailty as assessed by use of frailty screening or assessment tools, will be considered. Studies that include outcomes of health-related quality of life, social functioning and well-being will also be considered.

**Methods:** An initial limited search of PubMed and CINAHL has been undertaken to identify articles on the topic. The following sources will be searched for eligible papers: PubMed, CINAHL, Embase, PsycINFO, BNI, AMED, and OpenGrey. Retrieval of full-text studies, assessment of methodological quality and data extraction will be performed independently by two reviewers. Meta-analysis will be performed, if possible, and a Grading of Recommendations, Assessment, Development and Evaluation (GRADE) Summary of Findings presented.

**Systematic Review Registration Number: PROSPERO CRD42019137886**

**Keywords:** Frailty; nurse-led; older people; primary care; quality of life

## Introduction

Healthcare support needs to change radically to better meet the needs of the world-wide aging population. The World Health Organization (WHO) recently reported that both the proportion and absolute numbers of older people are increasing dramatically.<sup>1</sup> In the UK, the number of people aged 65 or over is projected to rise by over 41% in the next 17 years to over 16 million people. By 2040, nearly one in four people in the UK (24%) will be aged 65 or over.<sup>2</sup> As people age, they may develop a clinical syndrome known as frailty, which limits their ability to respond to complications such as minor illness, caused by a decline in functional capacity and reserves.<sup>3,4</sup> There are multiple definitions of frailty in the literature, but the most common characteristics are summarized as a clinical syndrome associated with older age and characterized by a decrease in biological reserves leading to increased risk of adverse outcomes.<sup>5</sup>

As frailty progresses, older people are more likely to develop frailty symptoms, which include falls, acute confusion/delirium, sudden loss of mobility and incontinence.<sup>6</sup> These events often result in hospital admission, following which frail older people often experience increased lengths of stay and are more prone to complications, including developing hospital acquired infections, pressure injury, delirium and loss of independence.<sup>7</sup> Frailty is common in community-dwelling older people, with studies averaging a prevalence of 10%, with rates increasing to 30% in those aged 85 years and over.<sup>8</sup>

Some authors have advocated for early identification, diagnosis and management of frailty in order to improve outcomes, prevent or delay deterioration, and reduce health and social care costs.<sup>9,10</sup> However, frailty is rarely formally diagnosed in any specialty other than geriatric medicine and is not yet recognized as a long-term condition in primary care. De Lepeleire et al.<sup>9</sup> advocate the management of frailty in primary care settings. However, they acknowledge that the identification of frailty and its application to clinical practice in this area are underdeveloped. Given its high prevalence, most ongoing frailty management will likely fall into the remit of primary care in the future. If an achievable preventive model of care can be developed, primary care will be the ideal setting to implement a more person-centered approach, because of the integrated nature of primary and community care and the ability to interact with patients in their home environment.<sup>11</sup>

One evidence-based approach to the management of moderate and severe frailty is the comprehensive geriatric assessment (CGA), defined as “a multidimensional, interdisciplinary diagnostic process to determine the medical, psychological and functional capabilities of a frail older

person in order to develop a coordinated and integrated individualized care plan for treatment and long-term follow-up in partnership with the patient and the carers".<sup>12(p.10)</sup> This approach is part of routine care and well-evidenced in hospital settings within the specialty of geriatric medicine, but not well established in other healthcare settings, including primary care.

In 2014, the British Geriatrics Society (BGS) suggested that a primary-care-led "holistic review" by a general practitioner or specialist nurse may enable more frail older people to access services outside of a hospital setting.<sup>12</sup> However, it is not clear whether the acute hospital CGA framework is immediately transferable. In 2014, Stijen<sup>13</sup> evaluated practice nurse-led CGA and found prohibitive issues for the primary care team, including lack of skills deficits, time constraints and ineffective targeting of the frail population. A study that evaluating nurse-led CGA in primary care settings reported barriers including lack of skills, time constraints and ineffective targeting of the frail population.<sup>14</sup> A recent review of the implementation of a standardized assessment tool noted the lack of an agreed implementation model and concerns of workforce capacity in UK primary care.<sup>15</sup>

The BGS have suggested other considerations that are missing from the traditional CGA framework, such as treatment escalation and advanced care planning. These considerations would appear to be highly relevant as part of a CGA intervention delivered in a primary care setting, where the clinician has a more long-term and person-centered relationship with the patient. A recent review of person-centered care concluded that while there is no universal definition of the concept, there are well recognized behaviors displayed by nurses that promote person-centeredness, such as engaging with the patient as a partner in the assessment and care planning process and shared decision-making.<sup>16</sup> These behaviors and their foundation in nurses' approaches to care would appear to make nurses the ideal clinician to carry out a CGA holistic review in a primary care setting.

Standardized assessment and care planning interventions implemented in primary care can meet the challenges of the increasingly frail and older population and provide proactive, holistic care close to home. This type of intervention provides value for money, is not time consuming and has a high level of sensitivity, which enables primary care resources to be targeted at patients who will most benefit from the intervention. It would seem likely that this intervention could be delivered by a primary or community health care nurse, but it is not yet clear if it will improve outcomes for patients, such as quality of life. Quality of life is defined by the WHO as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns."<sup>17(para.2)</sup> The WHO proposes that quality of life is comprised of several components including health, social functioning and emotional wellbeing.

When quality of life is considered in the context of health and disease, it is referred to as health-related quality of life (HRQoL). Health-related quality of life is multidimensional and incorporates domains related to physical, mental and emotional, and social functioning.<sup>18</sup> Health-related quality of life focuses on the quality of life consequences related to health status and considers the related concept of wellbeing. Social functioning has been defined as an individual's interactions with their

environment and the ability to fulfil their role within such environments as work, social activities and relationships.<sup>19</sup> Measures of wellbeing typically assess the positive aspects of a person's life such as positive feelings and life fulfilment.<sup>20</sup> This review will examine outcomes relating to HRQoL, social functioning and wellbeing, as these are linked components within the WHO definition.

Following a thorough search of PROSPERO, the Cochrane Database of Systematic Reviews and the *Joanna Briggs Institute Database of Systematic Reviews and Implementation Reports*, one review protocol with potential similarities to this proposed review has been identified. It is titled "Frailty Measurement and Outcomes in Interventional Studies: protocol for a systematic review of randomised control trials" (CRD42017065233). The focus of this review is to determine how frailty is measured and detail the outcome measures used in randomized control trials (RCTs) and the authors seek to determine which outcome measures and methods of frailty management are used. Therefore, it differs from our proposed protocol which focuses on comprehensive assessment coordinated by a nurse, with quality of life as an outcome measure. In addition, this review will include experimental and quasi-experimental study designs including non-RCTs, before and after studies and interrupted time-series studies, not just RCTs. A systematic review exploring the impact of assessment and care planning interventions on quality of life in community-dwelling frail older people will contribute to the implementation of evidence-based models of care and support.

### **Review objective**

The objective of this systematic review is to determine the effectiveness of nurse-coordinated, person-centered comprehensive assessment on improving quality of life for community-dwelling frail older people.

### **Inclusion criteria**

#### **Participants**

The review will consider studies that include participants who are aged 60 years and over and have a recognized level of frailty, assessed by use of frailty screening or assessment tools. The included studies must focus on participants who live at home or in supported living accommodation. Studies concerning residents of care homes will be excluded from the review.

#### **Intervention(s)**

This review will consider studies that evaluate nurse-coordinated, person-centered comprehensive assessment delivered in partnership with frail older people in primary/community healthcare settings. Studies of interventions will be included if they comprise of a holistic assessment process with the development of a personalized care and support plan, with the nurse working in partnership with the older person.

#### **Comparator(s)**

This review will consider studies that compare the intervention to usual community/primary care for frail older people.

## **Outcomes**

This review will consider studies that include the following person-centered outcomes: HRQoL, social functioning and wellbeing.

Various instruments are likely to be used to measure these outcomes. This review will focus on those using validated questionnaires/tools and may include: patient-reported outcome measures, measures of performance in activities of daily living, and social participation measures.

## **Types of studies**

This review will consider both experimental and quasi-experimental study designs including RCTs, non-RCTs, before and after studies and interrupted time-series studies. Additionally, in the absence of the aforementioned designs, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies will be considered for inclusion. In the absence of all the above, this review will also consider descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion.

## **Methods**

This systematic review will be conducted in accordance with JBI methodology for systematic reviews of effectiveness evidence.<sup>21</sup>

### **Search strategy**

The search strategy aims to locate both published and unpublished studies. An initial limited search of PubMed and CINAHL has been undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy. The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The search strategy for PubMed using keywords is detailed in Appendix I. The reference list of all studies selected for critical appraisal will be screened for additional studies.

### **Information sources**

The databases to be searched will include: PubMed, CINAHL, Embase, PsycINFO, BNI, AMED, and System for Information on Grey Literature in Europe (OpenGrey). The review will be limited to studies published in the English language from 1990 because there was little research conducted relating to frailty prior to this date.

### **Study selection**

Following the search, all identified citations will be collated and uploaded into bibliographic software and duplicates removed. Titles and abstracts will then be screened by two independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant studies will be retrieved in full and their citation details imported into the JBI System for the Unified Management, Assessment and Review of Information (JBI SUMARI; Joanna Briggs Institute, Adelaide, Australia). The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study selection process will be resolved through discussion or with a third reviewer. The results of the search will be reported in full in the final report and presented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram.<sup>22</sup> Authors of papers will be contacted to request missing or additional data for clarification, where required.

### **Assessment of methodological quality**

Eligible studies will be critically appraised by two independent reviewers for methodological quality in the review using relevant standardized critical appraisal instruments from JBI, including the 13-item RCT Critical Appraisal Tool, the 11-item Cohort Study Critical Appraisal Tool, the eight-item Analytical Cross Sectional Study Critical Appraisal Tool, the 10-item Case Series Critical Appraisal Tool, the eight-item Case Report Critical Appraisal Checklist and the 10-item Case Control Critical Appraisal Tool.<sup>21</sup> Reviewers will discuss and agree on quality thresholds for each tool. This decision will be based on agreement of the two independent reviewers. If there is disagreement, a third independent reviewer will be asked to resolve the disagreement through discussion. Following critical appraisal, studies that do not meet the required quality threshold will be excluded. The results of critical appraisal will be reported in narrative form and in a table.

### **Data extraction**

Data will be extracted from studies included in the review using the standardized data extraction tool from JBI SUMARI.<sup>21</sup> The data extracted will include specific details about the populations, study methods, interventions and outcomes of significance to the review objective. Authors of papers will be contacted to request missing or additional data, where required.

## Data synthesis

Studies will, where possible, be pooled to conduct statistical meta-analysis using JBI SUMARI.<sup>21</sup> Effect sizes will be expressed as either odds ratios (for dichotomous data) or weighted (or standardized) final post-intervention mean differences (for continuous data) and their 95% confidence intervals will be calculated for analysis. Heterogeneity will be assessed statistically using the standard chi-squared and  $I^2$  tests. Statistical analyses will be performed using a random effects model as it is highly unlikely that normality of distribution will be found.<sup>23</sup> Subgroup analyses will be conducted where there is sufficient data to investigate. In this case, it may be appropriate to analyze data relating to levels of participant frailty (i.e. mild, moderate and severe) and age, examining any differing effects on outcomes for each group. Sensitivity analyses will be conducted to test decisions made regarding the inclusion of small sample size effects and inclusion of any mega-trials. A funnel plot will be generated, using JBI SUMARI software to assess publication bias if there are 10 or more studies included in a meta-analysis. Statistical tests for funnel plot asymmetry (Egger test, Begg test, Harbord test) will be performed, where appropriate. Where statistical pooling is not possible, the findings will be presented in narrative form including tables and figures to aid in data presentation, where appropriate.

## Assessing certainty in the findings

A Summary of Findings will be created using GRADEpro software (McMaster University, ON, Canada) and the GRADE approach for grading the quality of evidence will be followed.<sup>24</sup> The Summary of Findings will present the following information where appropriate: absolute risks for treatment and control, estimates of relative risk, and a ranking of the quality of the evidence based on study limitations (risk of bias), indirectness, inconsistency, imprecision and publication bias. The following outcomes will be included in the Summary of Findings: HRQoL, social functioning and wellbeing.

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## Conflicts of Interest

BK is a member of the Editorial Advisory Board of the *JBISRIIR* and was not involved in the editorial processing of this manuscript.

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**Appendix I: Search strategy** (*level 1 heading*)

Database: PubMed.

Search date: 6/6/2019.

Platform: OVID via University of Plymouth.

Limits: English language, 1990- Present	Query	Items found
#40	Search (#8 AND #11 AND #24 AND #30 AND #39)	103
#39	Search (#31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38)	519,699
#38	Search "Office Nursing"[Mesh]	343
#37	Search "General Practice"[Mesh]	73,263
#36	Search general practice[Title/Abstract]	36,599
#35	Search (((("Community Health Services"[Mesh:NoExp]) OR "Community Health Nursing"[Mesh]) OR OR "Community Health Centers"[Mesh:NoExp])	55,356
#34	Search family medicine[Title/Abstract]	9951
#33	Search (primary care OR primary health care)	402,727
#32	Search community health care[Title/Abstract]	1037
#31	Search community care[Title/Abstract]	4401
#30	Search (#27 OR #28 OR #29)	369,170
#29	Search social function*[Title/Abstract]	13,418
#28	Search ((wellbeing[Title/Abstract] OR well-being[Title/Abstract] OR well being[Title/Abstract]))	80,386
#27	Search (#25 OR #26)	300,459
#26	Search "Quality of Life"[Mesh]	176,937
#25	Search quality of life[Title/Abstract]	244,465
#24	Search (#14 OR #17 OR #23)	117,279
#23	Search (#21 AND #22)	6634
#22	Search nurs*[Title/Abstract]	438,620
#21	Search (#18 OR #19 OR #20)	9671
#20	Search geriatric assessment[Title/Abstract]	3557
#19	Search "Geriatric Assessment"[Mesh]	25,427

#18	Search nursing intervention*[Title/Abstract]	6117
#17	Search (#15 OR #16)	41,006
#16	Search "Patient Care Planning"[Mesh:NoExp]	37,724
#15	Search "care plan*"[Title/Abstract]	4162
#14	Search (#12 OR #13)	75,828
#13	Search "Nursing Assessment"[Mesh]	32,177
#12	Search nurs* assessment[Title/Abstract]	51,445
#11	Search (#9 OR #10)	3,493,252
#10	Search ((elder*[Title/Abstract] OR aged[Title/Abstract] OR "older people"[Title/Abstract] OR "older person"[Title/Abstract] OR geriatric[Title/Abstract] OR senior[Title/Abstract] OR aging[Title/Abstract] OR "old age"[Title/Abstract]))	931,836
#9	Search (("Aged"[Mesh]) OR "Aged, 80 and over"[Mesh])	2,951,024
#8	Search (#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7)	192,870
#7	Search "Sarcopenia"[Mesh]	3256
#6	Search ("Frailty"[Mesh]) OR "Frail Elderly"[Mesh])	10,950
#5	Search "complex needs"[Title/Abstract]	1334
#4	Search vulnerab*	125,911
#3	Search fragil*[Title/Abstract]	39,452
#2	Search sarcopenia[Title/Abstract]	6633
#1	Search frail*[Title/Abstract]	19,079