

**Assessment of quality of life for frail, elderly patients post-ICU discharge
a protocol for a scoping review**

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BMJ Open Assessment of quality of life for frail, elderly patients post-ICU discharge: a protocol for a scoping review

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ABSTRACT

Introduction Rises in average life expectancy, increased comorbidities and frailty among older patients lead to higher admission rates to intensive care units (ICU). During an ICU stay, loss of physical and cognitive functions may occur, causing prolonged rehabilitation. Some functions may be lost permanently, affecting quality of life (QoL). There is a lack of understanding regarding how many variables are relevant to health-related outcomes and which outcomes are significant for the QoL of frail, elderly patients following discharge from the ICU. Therefore, this scoping review aims to identify reported variables for health-related outcomes and explore perspectives regarding QoL for this patient group.

Methods and analysis The Joanna Briggs Institute guidelines for scoping reviews will be employed and original, peer-reviewed studies in English and Scandinavian languages published from 2013 to 2023 will be included. The search will be conducted from July 2023 to December 2023, according to the inclusion criteria in Embase, MEDLINE, PsycINFO and CINAHL. References to identified studies will be hand-searched, along with backward and forward citation searching for systematic reviews. A librarian will support and qualify the search strategy. Two reviewers will independently screen eligible studies and perform data extraction according to predefined headings. In the event of disagreements, a third reviewer will adjudicate until consensus is achieved. Results will be presented narratively and in table form and discussed in relation to relevant literature.

Ethics and dissemination Ethical approval is unnecessary, as the review synthesises existing research. The results will be disseminated through a peer-reviewed publication in a scientific journal.

INTRODUCTION

With the advances in medical diagnostics, preventive awareness and evidence-based treatment strategies, along with robust support from technological interventions, diseases are diagnosed earlier and treated promptly, postponing mortality.¹ This has resulted in an improvement in the overall health of the global population, leading to growth in the relative number of elderly

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The Joanna Briggs Institute methodology provides a systematic approach to this scoping review.
- ⇒ Updated database searches will be performed prior to submission to a scientific journal.
- ⇒ The authors aim to increase recall by employing multiple databases and supplementary searches.
- ⇒ A potential bias exists as studies published in languages other than English or Scandinavian will be excluded.
- ⇒ The time frame included in the systematic search presents the risk of excluding relevant studies.

people.² Furthermore, with an increased understanding of the importance of factors that contribute to healthy and disease-free human states, such as regular exercise, healthy lifestyle, etc, many countries, especially in the Western world, focus on improving and modernising healthcare systems.^{3 4} However, it has been observed that increasing age carries a consequent risk of multiple age-related comorbidities and frailty among older people.^{5 6}

Several definitions of frailty exist. Qian-Li Xue describes frailty as a syndrome, where frailty is a reciprocally deteriorating state of health that occurs in ageing adults with comorbidities.⁷ Another definition of frailty states that frailty is often defined as a syndrome related to age with greater vulnerability and less physiological function contributing to adverse health-related outcomes.⁸ Likewise, Bertschi *et al* define frailty as a multimodal phenomenon depending on several dynamic, interrelated factors in different areas, such as social, physical, psychological and environmental domains that affect the patient on all levels.⁹

The cumulative result of frailty and the possibility of providing more advanced treatments can lead to multiple hospital admissions for frail, elderly people. This is partially

demonstrated by the observation that there is a steep rise in demand for intensive care beds along with an equal rise in the requirement for out-of-hospital health support such as physiotherapy, elderly nursing care, etc.^{10 11}

Our operational definition of frailty is that frailty is a medical and physiological concept that refers to a state of increased vulnerability, weakness and diminished physiological reserve associated with underlying health conditions. It is characterised by a reduced ability to withstand stressors, illness or physical demands, which can lead to functional decline and a higher risk of disability. Furthermore, due to accompanying frailty and comorbidities for frail, elderly patients in the ICU, the period of recovery becomes delayed and the intensive care unit (ICU) stay may invariably be extended.¹²

Increased patient involvement in treatment decisions, such as the use of shared decision-making, is also evident in critical situations in the ICU.¹³ However, some physicians are reluctant to hold discussions with patients and families regarding treatment options for various reasons, for example, lack of time or lack of competencies.¹⁴ Furthermore, patient and family involvement is a relatively new concept for some patients, who find it difficult to respond to questions regarding their wishes for treatment options or outcomes.¹⁴ Unclarified treatment decisions can lead to extended stays for frail, elderly patients in the ICU.¹²

ICU admissions result in the loss of both physical and cognitive functions among patients,¹¹ which require rehabilitation to regain. Regaining loss of function, especially in elderly patients, takes longer, and not all functions may be regained following a critical illness.¹⁵ According to Joseph *et al*, as people age, their ability to cope with stress decreases and a reduction in their functional capacity limits their ability to recover from serious illnesses.^{12 16 17} This, in turn, may change how patients live, such as through an increased fear of falling and a reduction in their ability to perform basic activities of daily living, all of which contribute to the risk of lowering patients' QoL.¹⁸ This can be explained by the inverse proportionality that exists between frailty and QoL, that is, the higher the frailty, the lower the QoL.¹⁹ The consequent deterioration in the day-to-day functioning of these patients after discharge from the ICU offers considerable challenges to families and health support systems.

There is an increasing focus on QoL in preventative medicine,^{20 21} and an awareness of more aspects, for example, perception of position in life and spirituality that contribute to defining QoL. QoL has many contributory factors, such as physiological, biological, mental, social, spiritual, national and economic factors.²² This triggers questions about the characteristics of life for frail, elderly patients after discharge from the ICU. Although literature and assessment tools for quantifying and qualifying frailty⁹ and QoL²³ exist, data about patients' perspectives of life post-ICU discharge is sparse.²⁴ Recent reviews that have examined frailty and QoL in relation to ICU have looked at methods of assessing

frailty in critically ill,⁹ QoL in elderly ICU survivors prior to COVID-19²⁵ and instruments measuring outcomes in adult ICU survivors.²⁶ Bertschi *et al* demonstrated various methods for examining frailty and found that frailty on ICU admission is associated with several detrimental outcomes, including increased mortality, functional and cognitive impairment, increased healthcare dependency and impaired QoL.⁹ Although a correlation was found between frailty and QoL post-ICU discharge, this has not been examined from a patient perspective. A recent systematic review by Ariyo *et al* found that QoL in elderly patients surviving ICU was slightly worse than that of younger ICU survivors, slightly worse than their own QoL scores prior to an ICU stay and worse when compared with community peers.²⁵ However, moderate-to-high levels of heterogeneity between studies limit the generalisability of these results, leading to a need for further research in the area.²⁵ Despite identifying and assessing 20 studies on measurement properties to assess outcomes in ICU survivors, Robinson *et al* found that there was insufficient evidence to draw a conclusion on the quality of instruments to measure QoL post-ICU discharge.²⁶ Frailty was not examined, and measurement tools were not aimed at elderly patients in particular. None of the aforementioned reviews examined the relationship between frailty, old age, intensive care therapy and post-ICU discharge QoL. There is a considerable knowledge gap regarding the clarity of these patients' understanding of expectations and level of satisfaction with life post-ICU discharge. Furthermore, the challenges presented by this patient group to relatives and society have not been systematically reported. QoL and frailty are subjective expressions that are difficult to define objectively. Therefore, we find it important to understand QoL after discharge from the ICU in frail, elderly patients through systematic data synthesis. We expect to find health-related parameters and tools that describe QoL and subjective patient perspectives on QoL post-ICU discharge.

Our initial search will encompass several databases, including Embase, MEDLINE, the Cochrane Database of Systematic Reviews (CDSR), PROSPERO and JBI Evidence Synthesis. To the best of our knowledge, there are no existing or ongoing systematic or scoping reviews that specifically address the topics of frailty, old age, intensive care therapy and QoL post-ICU discharge in this patient population. This lack of available research has led to the necessity of conducting a scoping review in order to gather and synthesise evidence on the subject.

Review questions

- ▶ What are frail, elderly patients' perspectives on QoL post-ICU discharge?
- ▶ Which health-related variables are used to define QoL and frailty?
- ▶ Which tools are used to assess and quantify QoL and frailty in frail, elderly patients post-ICU discharge?

Table 1 Inclusion and exclusion criteria for a scoping review on the assessment of QoL for frail, elderly patients post-ICU discharge

| Characters of studies | Inclusion criteria | Exclusion criteria |
|---|---|--|
| Age of patients | 70 years and above: for studies that involve both patients under and above 70 years, the studies will be included if the percentage of patients aged 70+ years exceeds 50%. | |
| Type of patients | | Postoperative patients less than 48 hours admission to ICU |
| Duration of admission to ICU | More than 48 hours admission to ICU | |
| Levels of ICUs | All | |
| Location | Worldwide | |
| Language | English and Scandinavian | |
| Time frame | Published 2013–2023 | |
| Type of study | Primary, peer-reviewed, empirical studies | Abstracts, conference papers and doctoral theses |
| Frailty in studies | Any measurement or description of frailty, regardless of definition | No measure of frailty employed |
| Type of perspective | Patient perspectives relating to QoL post-ICU discharge | |
| ICU, intensive care unit; QoL, quality of life. | | |

METHODS AND ANALYSIS

The proposed scoping review will be conducted following the JBI methodology for scoping reviews, and the protocol is reported according to the adapted preferred reporting items for systematic reviews and meta-analyses (PRISMA-P) reporting checklist for scoping reviews.²⁷ The scoping review methodology has been chosen for its suitability for addressing our topic, namely, the comprehensive identification and synthesis of health-related parameters and tools used for the assessment of QoL of frail, elderly patients post-ICU discharge. Furthermore, once identified, the parameters and tools will be summarised into various components, including frequency of use, indication for its use, target population, validity, responsiveness, ease of use, administrative burden and psychometric properties.

Eligibility criteria

Studies eligible for inclusion in this scoping review are identified in the following sections and inclusion and exclusion criteria are displayed in [table 1](#) below.

Participants

The review will consider studies that include critically ill patients older than 70 who were discharged from the ICU after a stay of more than 48 hours.

We have chosen the age of 70 because, according to the growing age, more elderly people will still be actively working in the future.²⁸ Furthermore, we decided on the age of 70 years because it is the old frail patients we are interested in, and not only frail people. Moreover, to thoroughly evaluate the impact of ICU treatment and narrow our focus to critically ill patients, we have decided to exclude postoperative patients who typically spend less

than 48 hours in the ICU solely for extended observation purposes.

Concept

The overall concepts of interest are QoL and frailty in elderly people post-ICU discharge. Frailty, apart from chronic illness and its treatment, is a consequence of natural ageing and can carry various definitions depending on the context, as mentioned above.^{5–7,9} Similarly, QoL is a subjective expression with multiple aspects such as physiological, biological, mental, social, spiritual, national and economic factors.²² Furthermore, apart from being a major contributing factor to deterioration in QoL, frailty can be a parameter that must be studied for its quantification. Being relatively objective and more relevant to the clinical context, the authors find it logical to focus on the identification of health-related variables and quantification systems used for the assessment of frailty and QoL.

Context

We will include studies where patients were admitted to ICUs worldwide.

During our initial search in relevant databases, we found a growing number of publications within the last 10 years on the topic of interest and have therefore decided to limit our scoping review to include literature published between 2013 and 2023.

Types of sources

The current review will consider primary, peer-reviewed, empirical studies of quantitative, qualitative and mixed-method designs for inclusion. References to the identified studies will be hand-searched for further potential studies to include. The Cochrane Database of Systematic

Reviews will be searched for reviews relevant to the review question and, likewise, used for supplemental searching. Conference papers, abstracts and doctoral theses will not be included.

As the goal is to locate validated tools, the authors will restrict the search to original, peer-reviewed studies and exclude grey literature. Furthermore, by including only peer-reviewed studies, we attempt to ensure a certain level of quality in the final synthesis. From a practical point of view, studies published in English and Scandinavian languages will be considered eligible for inclusion.

Search strategy and study selection

According to the JBI guidance for scoping reviews, the search process will consist of three steps known as PCC, which stands for Population, Concept and Context,²⁷ as displayed above, to develop the search strategy. Searches will be conducted in Embase, MEDLINE, PsycINFO and CINAHL. The search strategy will be developed as follows:

- ▶ An initial limited search of Embase will be undertaken, followed by the analysis of the text words contained in titles and abstracts and of index terms used to describe the article.
- ▶ A search using all identified keywords (Elderly, Frailty, Geriatric, Intensive Care Unit, Survivors and QoL) and synonyms and index terms will then be undertaken across all included databases.

An information specialist and a librarian will be consulted to support and qualify the search strategy. The reference list of all included studies will be searched for additional studies using Scopus. Retrieved studies will be exported to Endnote, duplicates will be removed and the remaining studies will be imported to Covidence for data management.

Two reviewers will independently screen titles, abstracts and full texts. In the event of disagreements, a third reviewer will be consulted to adjudicate and consensus will be achieved through discussion.

The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a PRISMA extension for scoping reviews (PRISMA-ScR) flow diagram (see [figure 1](#)). Excluded sources will also be reported with reasons for exclusion.

The search strategy for Embase is presented in online supplemental appendix 1 to allow for replication.

Data extraction

Covidence will be used for data extraction according to the JBI template for the source of evidence details and results extraction.

The following parameters will be presented in a data extraction table (see online supplemental file appendix 2).

- ▶ Title, first author and year of publication.

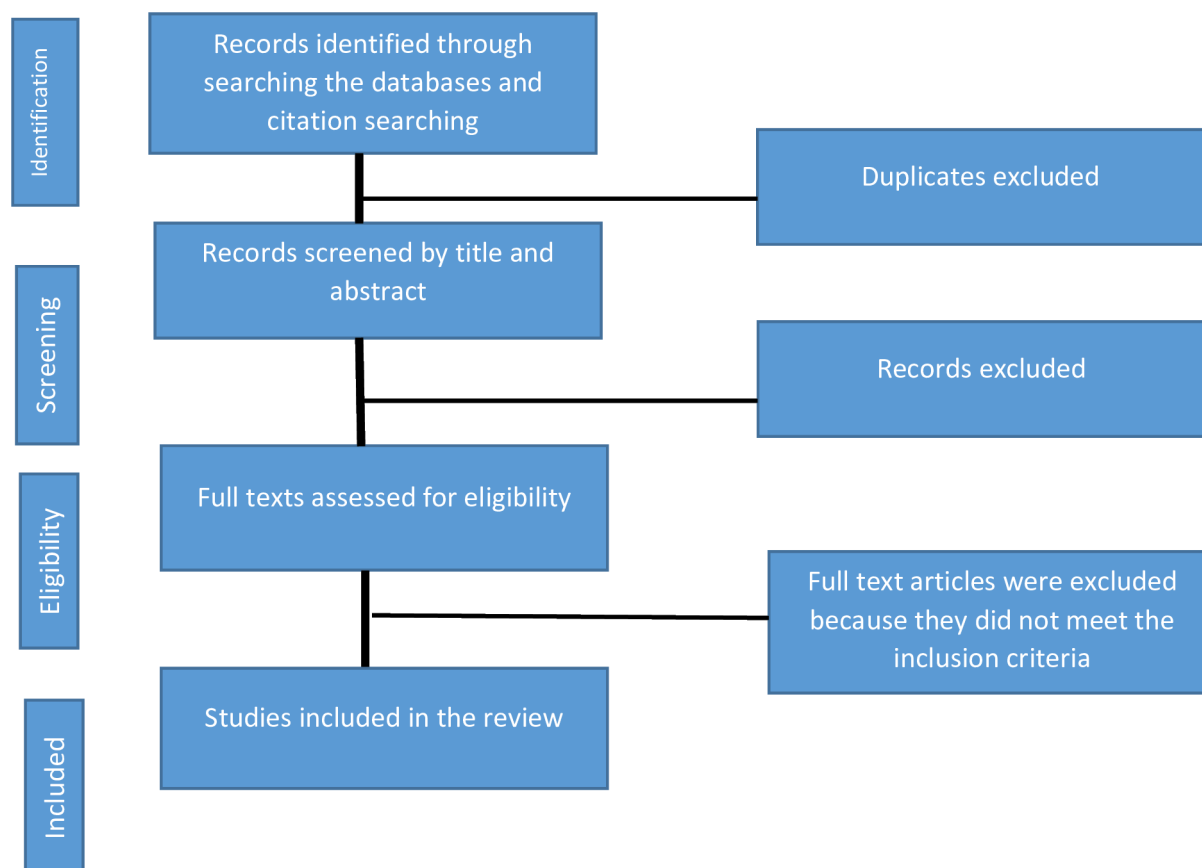


Figure 1 Flow diagram illustrating the search and selection process of a scoping review of health-related parameters and tool used for assessment of quality of life for frail, elderly patients after discharge from intensive care unit.

- ▶ Country of origin.
- ▶ Study type
- ▶ Number of included patients.
- ▶ Age of patients.
- ▶ Sex.
- ▶ Follow-up time.
- ▶ Frailty assessment tools.
- ▶ Tools used to measure health-related outcomes.
- ▶ Health-related outcomes parameters
- ▶ Scale for assessment of QoL.

Two authors will independently perform data extraction and cross-check afterwards. In the event of disagreements, a third reviewer will be consulted to adjudicate, and consensus will be achieved through discussion. We will not appraise the methodological quality or perform risk of bias of the included articles, which is consistent with guidance on conducting scoping reviews.²⁷

Data analysis and presentation

A table of results will be compiled, presenting the various health-related parameters that contribute to QoL, along with the assessment tools employed to measure them. The table will also include information on the frequency of usage for each parameter and assessment tool. In addition, a narrative summary of each parameter and tool will be included to provide further details.

This review will provide a detailed summary of parameters and tools used to assess and quantify QoL for frail, elderly patients. The findings from this review will be useful for clinicians, intensive care physicians and health-care social workers to select an appropriate tool for the assessment of possible outcomes after intensive care treatment in frail, elderly patients. This may, in turn, help to resolve some of the dilemmas during resource allocations in challenging situations. Furthermore, the results of this scoping review may guide researchers in choosing the most appropriate instrument for future database or prospective studies.

Ethics and dissemination

Ethical approval is unnecessary, as the review synthesises existing research. The results will be disseminated through a peer-reviewed publication in a scientific journal.

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Contributors The scoping review was planned and conceived by GKA, EHB, RPB, HIJ, LJA, NCH and TS. GKA and RPB were responsible for the initial search. GKA was responsible for the design used throughout the manuscript and the drafting and reporting of the protocol manuscript. EHB, RPB, LJA, HIJ and TS have contributed to developing the protocol manuscript with supervision and critical revision. EHB, a native English speaker, has proofread the manuscript. All authors (GKA, EHB, RPB, HIJ, LJA, NCH and TS) have approved the final draft of the manuscript.

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