Dimensions of quality of life in patients with heart failure and sarcopenia: a scoping review protocol

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Objective: To map the dimensions of quality of life in patients with heart failure (HF) and sarcopenia. Methods: The scoping review will adhere to the JBI Manual for Evidence Synthesis methodology and will be reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR). Searches will encompass MEDLINE/PubMed, SCOPUS, EMBASE/Elsevier, LILACS, IBECS, BDENF (BVS), SciELO, Core Collection (Clarivate Analytics), CINAHL, Academic Search Premier (EBSCO), PsycINFO (APA), Cochrane Library, Epistemonikos, and academic search engines: Google Scholar and Bielefeld Academic Search Engine (BASE), without language or date restrictions. Inclusion criteria: Population — adults with HF and sarcopenia; Concept — Dimensions of quality of life including mobility, self-care, usual activities, pain/discomfort, and anxiety/depression — defined based on the EQ-5D-3L questionnaire; Context — any health care setting. Two independent reviewers will select studies and extract data, with a third reviewer consulted in cases of discrepancies. Findings will be presented graphically with a narrative summary. Expected results: We aim to uncover key dimensions of quality of life through this scoping review. Anticipated outcomes include insights into mobility, self-care, usual activities, pain/discomfort, and anxiety/depression across diverse health care settings. Relevance: This review sheds light on the interplay between HF and sarcopenia and its impact on quality of life. The findings may guide interventions, inform evidence-based decision-making, and contribute to targeted strategies to improve the well-being of individuals managing both conditions. Review registration: Open Science Framework [https://archive.org/details/osf-registrations-jn387-v1]. Keywords: EQ-5D-3L; EUROQoL; heart failure; quality of life; sarcopenia.
INTRODUCTION

Heart failure (HF) is a complex syndrome resulting from structural or functional impairment in ventricular filling or blood ejection, progressing with high mortality rates comparable to those of various neoplastic diseases and a significant reduction in quality of life. U.S. data show an annual incidence of 650,000 cases, reaching a prevalence of 5.1 million individuals and causing over a million hospital admissions per year, with an estimated cost of 30 billion dollars annually. In Brazil, 2017 data portray a substantial burden on the public health system, with 208,054 hospital admissions, 22,598 deaths, and an expenditure of over 300 million reais annually. This syndrome stands as the leading cause of hospitalization among individuals over 60 years of age in the country.1-5

In the advanced stages of HF, weight loss leads to loss of muscle mass and reduced daily activity, associated with metabolic, immunological, and neurohormonal factors, predicting poor quality of life and an unpromising prognosis.6,7 This progressive loss of muscle mass and strength, termed sarcopenia, is linked to premature mortality in older adults, and its prognosis may vary between men and women.8

Contemporary concepts of sarcopenia now encompass the evaluation of muscle strength and physical performance alongside muscle mass assessment. The European Working Group on Sarcopenia in Older People (EWGSOP) defines 3 conditions: pre-sarcopenia, sarcopenia, and severe sarcopenia. The first condition is identified by low muscle mass without concurrent changes in strength or physical performance, while the second involves decreased muscle mass related to alterations in strength or performance, and the third involves the simultaneous presence of all 3 conditions: low muscle mass, low muscle strength, and reduced physical performance.9 Sarcopenia is associated with an increased risk of falls and fractures, impairment in activities of daily living, cognitive dysfunction, reduced mobility, functional decline, loss of independence, consequent need for long-term care, and a negative impact on quality of life.10-12

Studies have confirmed a compromised quality of life in patients with HF. The coexistence of HF and sarcopenia can worsen prognosis, increasing health care costs and the risk of hospitalization.13-17 Consequently, the present study could significantly contribute to understanding the dimensions of quality of life in patients with HF and sarcopenia. Its outcomes may inform health care practitioners in defining intervention strategies targeted toward individuals with HF identified as sarcopenic.

A preliminary search conducted in MEDLINE, the Cochrane Database of Systematic Reviews, and JBI Evidence Synthesis revealed 2 comprehensive systematic reviews already published on the topic linking sarcopenia to cardiovascular disease (CVD) and HF. The former investigated the prevalence of sarcopenia in patients with CVD compared with a healthy non-hospitalized population,18 and the latter estimated the current global prevalence of sarcopenia in patients with HF.19 Nevertheless, no current or ongoing systematic scoping reviews were found on the dimensions of quality of life in patients with HF and sarcopenia, hindering the identification of different concepts and assessment methods in the daily practice of health care professionals and researchers in the field.

The objective of this scoping review is to map scientific evidence on the dimensions of quality of life in patients with HF and sarcopenia.

METHODS

We will employ the JBI methodology20 for scoping reviews and adhere to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines.21 The protocol has been registered on the Open Science Framework [https://archive.org/details/osf-registrations-jn387-v1].

Review question

What are the dimensions of quality of life in patients with HF and sarcopenia?

Inclusion criteria

Participants

The study will examine primary studies of populations aged 18 years and over with HF and sarcopenia. The primary focus will be on investigations that address the aging of the adult population. This will allow for a comparative analysis that highlights the differential impact of the disease on young and older adults. Consequently, the inclusion of young adults and older adults in the study is intended not only to provide a general overview of the disease at different ages but also to highlight the particularities and challenges faced by the older population, which is most affected by the condition under study. For this reason, the study aims to obtain a comprehensive view of how the condition affects different age groups, especially considering that the prevalence of the disease tends to be higher in older adults.1

Concept

Dimensions of quality of life – mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. These dimensions were defined using the EQ-5D-3L questionnaire, which...
consists of a descriptive system encompassing these 5 health dimensions, each with 3 severity levels. These dimensions are key aspects of health and functionality.22

**Context**

Studies conducted in any health care setting will be included, with no restrictions on where patients with HF and sarcopenia have been assessed for quality of life.

**Types of evidence sources**

This scoping review will include primary studies of various designs — experimental and quasi-experimental (randomized controlled trials, non-randomized controlled trials, before-and-after studies, and interrupted time series), analytical observational (prospective and retrospective cohort studies, case-control studies, and analytical cross-sectional studies), descriptive observational (case series, individual case reports, descriptive cross-sectional studies, and qualitative studies) — as well as dissertations, theses, and reviews for reference analysis. Literature reviews, summaries, conference proceedings, letters, editorials, and commentaries will be excluded.

**Search strategy**

The search strategy aims to locate both published and unpublished studies. An initial limited search in MEDLINE/PubMed and BVS/Bireme electronic databases was conducted to identify articles on the topic. Text words from the titles and abstracts of relevant articles, as well as index terms used to describe the articles, were used to develop a comprehensive search strategy for other databases: SCOPUS, EMBASE/Elsevier, LILACS, IBRACS, BDENF (BVS), SciELO, Core Collection (Clarivate Analytics), CINAHL, Academic Search Premier (EBSCO), PsycINFO (APA), Cochrane Library, Epistemonikos, and academic search engines such as Google Scholar, Bielefeld Academic Search Engine (BASE), and the Cost-Effectiveness Analysis (CEA) Registry.

For example, the PubMed search strategy included the following terms: (“Heart Failure” OR Cardiac Failure OR Heart Decompensation OR Myocardial Failure OR Cardiac Backward Failure OR Cardiac Decompensation) AND (Sarcopenia OR Sarcopenic* OR Frailty) AND (“Quality of Life” OR “Health Related Quality of Life” OR “Health-Related Quality of Life” OR HRQOL OR “Life Quality” OR “EQ-5D-3L” OR “EQ5D3L” OR “EuroQol 5D-3L”). The full search strategy, including all terms, is detailed in the Supplementary Material.

The search strategy including all identified keywords and index terms will be adapted for each database and/or information source included. The reference lists of all included sources of evidence will be assessed for additional studies. Studies published in any language and without date restrictions will be considered.

**Study/source of evidence selection**

After identifying studies in the databases, all identified citations will be grouped and imported into EndNote (Clarivate Analytics, PA, USA), a reference management software package for scientific articles. Duplicates will be removed using the EndNote reference manager and then imported into the Intelligent Systematic Review software (Rayyan). This will be used to manage the selection process. Two independent reviewers will participate in the selection process, and their assessment for inclusion will be based on pre-established eligibility criteria. Any disagreements between the reviewers at any stage of the review will be resolved by a third reviewer.

Potentially relevant sources selected in the initial screening will be retrieved in full. Two or more independent reviewers will thoroughly assess the full text of selected citations against the inclusion criteria. References from included primary studies will be consulted.

Reasons for excluding sources that do not meet the inclusion criteria will be recorded and reported. The results of the search, selection and inclusion process will be fully documented in the final version of the scoping review and presented in a summary table, flowchart and narrative discussion in accordance with the PRISMA-ScR guidelines.

**Data extraction**

The research team will use a data extraction tool (see Supplementary Material). After inclusion of the selected studies, 2 independent reviewers will thoroughly review the material and extract the data. Data extraction and any potential discrepancies will be discussed during research team meetings. The instrument will be pilot-tested for any necessary adjustments. Any discrepancies in data extraction will be resolved by discussion or by involving a third reviewer. If necessary, authors of articles and documents will be contacted for missing or additional data, as appropriate. The data extraction instrument describes citation details (authors, year, title, journal, volume, number, and pages), study objective, method/design, data collection, methodological quality, analysis, results, and population-concept-context data. The included studies will be assessed for methodological quality using the Risk of Bias in Systematic Reviews (ROBIS) tool.21

**Data analysis and presentation**

The data will be presented in a summary table, a flowchart, and a narrative discussion. A narrative summary will accompany the tabulated results, describing how the results relate...
to and are consistent with the objectives and questions of the review. The structure of the final article will follow the principles outlined in the PRISMA-ScR.

Expected results
We aim to uncover key dimensions of quality of life in individuals with HF and sarcopenia through this scoping review. Anticipated outcomes include insights into mobility, self-care, usual activities, pain/discomfort, and anxiety/depression as measured by the EQ-5D-3L questionnaire. A synthesis of existing literature will provide a comprehensive understanding of how these factors impact adults across diverse health care settings.

Relevance and dissemination
Of significance in health care, this review sheds light on the interplay between HF and sarcopenia in the context of quality of life. The findings may guide interventions, inform evidence-based decision-making, and contribute to targeted strategies to improve the well-being of individuals managing both conditions. The review is expected to influence research, clinical approaches, and policymaking in the care of individuals dealing with HF and sarcopenia.

SUPPLEMENTARY MATERIALS
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