

The role of nurses in the identification, prevention and management of frailty in older adults: a literature review

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Abstract

Introduction. Frailty is a major geriatric syndrome associated with an increased risk of hospitalisation, disability, and mortality. Early identification and comprehensive interventions may reduce its progression, and nurses play an important role in screening and preventive care. **Aim.** The aim of this literature review was to analyse current scientific evidence published between 2020 and 2026 regarding the identification, prevention, and management of frailty in older adults, with particular emphasis on the role of nurses. **Material and methods.** A systematic literature review was conducted using PubMed/MEDLINE, Scopus, and Web of Science databases. Studies published between 2020 and 2026 in English and concerning adults aged ≥ 65 years were included. The review followed PRISMA guidelines. Seventeen studies met the inclusion criteria. **Results.** The most effective interventions were multi-component programmes combining physical activity, nutritional support, and health education. Nurse-led interventions and digital technologies showed positive effects on functional outcomes and frailty progression. **Conclusions.** Nurses play a key role in frailty identification and management, and comprehensive interventions may improve outcomes in older adults. (*Gerontol Pol* 2026; 34; 107-114) doi: 10.53139/GP.20263410

Keywords: frailty, older adults, nursing, prevention, screening, community care

Introduction

Population ageing has been one of the most significant health challenges of the 21st century. Increased life expectancy, improved effectiveness of treatment for chronic diseases, and demographic changes have led to a systematic rise in the proportion of older people within societies. According to demographic forecasts, the number of individuals aged over 65 years will increase dynamically in the coming decades, which directly translates into a growing demand for healthcare and long-term care services. Along with the ageing process, the prevalence of geriatric syndromes increases, among which frailty is of particular importance.

Frailty is a clinical condition characterised by reduced physiological reserve and increased vulnerability to stressors, even those of low intensity [1]. Unlike chronological age or a single chronic disease, frailty reflects a global decline in the body's adaptive capacity. This means that in frail individuals, even seemingly minor events – such as infection, minor injury, or changes in pharmacotherapy – may lead to a rapid deterioration in

functional status, hospitalisation, and even loss of independence.

The literature emphasises that frailty is a multidimensional syndrome encompassing physical, psychological, and social components [1,2]. The most commonly used theoretical models include the Fried frailty phenotype, which focuses on physical symptoms (unintentional weight loss, muscle weakness, exhaustion, slow walking speed, and low physical activity), and the deficit accumulation model (Frailty Index), which includes a wide range of functional and clinical impairments. Regardless of the definition used, frailty is associated with a significantly increased risk of adverse health outcomes.

The prevalence of frailty in the population aged over 65 years is estimated at 10–25%, while pre-frailty may affect up to 40–50% of older adults [3]. In populations burdened with chronic diseases such as diabetes, heart failure, or chronic obstructive pulmonary disease, these rates are even higher [3]. Additionally, environmental and psychosocial factors, including loneliness, limited mobility, and low socioeconomic status, may accelerate the frailty process [4]. The clinical consequences of

frailty include an increased risk of falls, hospitalisation, institutionalisation, reduced quality of life, and mortality [1,2].

From the perspective of the healthcare system, frailty represents a significant economic burden. Patients diagnosed with frailty use healthcare services more frequently, require longer hospital stays, and are more often rehospitalised. In the context of limited staffing and financial resources, there is a growing need to implement measures aimed at early identification and prevention of frailty progression.

An important aspect is that frailty is not an irreversible condition, particularly at the pre-frailty stage. The literature indicates that appropriately selected interventions – especially those of a comprehensive nature – may slow down or even partially reverse the frailty process [5,6]. The most effective programmes include physical exercise (particularly resistance and balance training), nutritional support, and health education. Increasing importance is also being attributed to the use of digital technologies in monitoring and supporting older adults [7,8].

In this context, nurses play a particularly important role. As professionals who remain in direct and often long-term contact with patients, nurses have a unique opportunity to identify early signs of declining functional status. In primary care and community care settings, nurses are often the first to observe subtle changes in mobility, nutrition, or cognitive function. The literature indicates that nurse-led programmes implemented in community settings can effectively reduce frailty progression and decrease the risk of hospitalisation [9,10]. The role of nurses is not limited to problem identification; it also includes planning individual care plans, providing health education to patients and their families, monitoring intervention outcomes, and coordinating cooperation with the interdisciplinary team [11]. In the context of an ageing population and a shortage of physicians in many healthcare systems, nursing competencies in the management of geriatric syndromes are becoming increasingly important.

Furthermore, the development of telemedicine, e-health systems, and automated frailty indices creates new opportunities to support nursing practice [2,7,8]. These technologies may support screening, monitoring, and the evaluation of intervention effectiveness. However, their implementation requires appropriate organisational preparation and education.

Given the scale of the problem and the potential reversibility of frailty, there is a need for a synthetic analysis of current scientific evidence regarding the role of nurses in the identification, prevention, and management of frailty. Understanding the effectiveness of available

strategies and identifying areas requiring further research may contribute to improving the quality of care for older adults.

Aim

The aim of this literature review was to analyse current scientific evidence published between 2020 and 2026 regarding the identification, prevention, and management of frailty in older adults, with particular emphasis on the role of nurses.

Material and methods

A literature review was conducted based on a structured search strategy and study selection process to analyse current scientific evidence regarding frailty in older adults and the role of nurses in its identification, prevention, and management.

Search strategy

The literature search was conducted in three electronic databases: PubMed/MEDLINE, Scopus, and Web of Science, between January and February 2026. The search strategy included the following keywords: “frailty”, “older adults”, “nursing”, “nurse-led intervention”, “primary care”, “screening”, “digital health”, and “telehealth”. Boolean operators (AND, OR) were used to combine the search terms.

Inclusion and exclusion criteria

The review included studies published between 2020 and 2026, written in English, concerning individuals aged 65 years and older, and addressing frailty identification, prevention, or intervention, with particular emphasis on the role of nurses. The following types of studies were included: systematic reviews, meta-analyses, randomised controlled trials, and observational studies. Contextual publications related to frailty definitions, epidemiology, and assessment tools were also included if they were relevant to the interpretation of the role of nurses in clinical practice.

The exclusion criteria were as follows:

- case reports
- editorial comments
- studies without a nursing-related component
- studies not related to frailty in older adults.

Study selection

The literature search and the study selection process is presented in the PRISMA flow diagram (Figure 1). The review process was conducted collaboratively by four authors. All authors independently screened titles, abstracts, and full texts.

The database search identified 146 records (PubMed $n = 51$, Scopus $n = 55$, Web of Science $n = 40$). After

removing 21 duplicates and 66 records that did not meet the inclusion criteria, 59 records remained for title and abstract screening. After the initial screening, 29 articles were assessed for eligibility through full-text review. During the eligibility phase, 12 studies were excluded due to the following reasons: case studies ($n = 4$), editorial comments ($n = 6$), and lack of a nursing-related component ($n = 2$). Finally, 17 studies met the inclusion criteria and were included in the review.

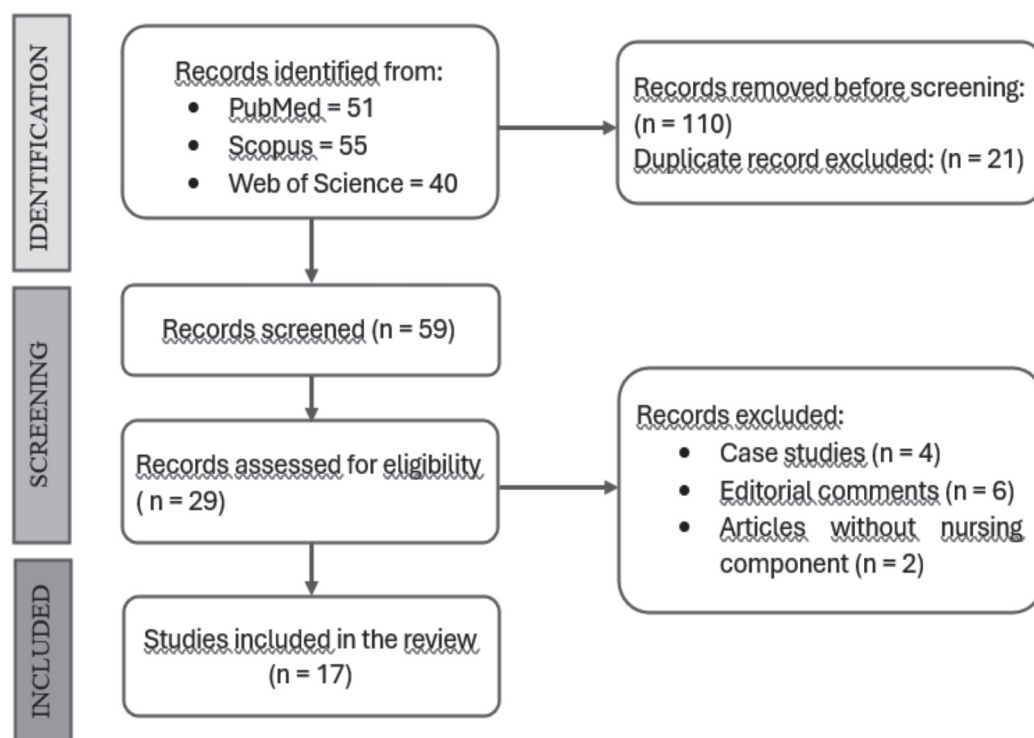


Figure 1. PRISMA flow diagram of the study selection process

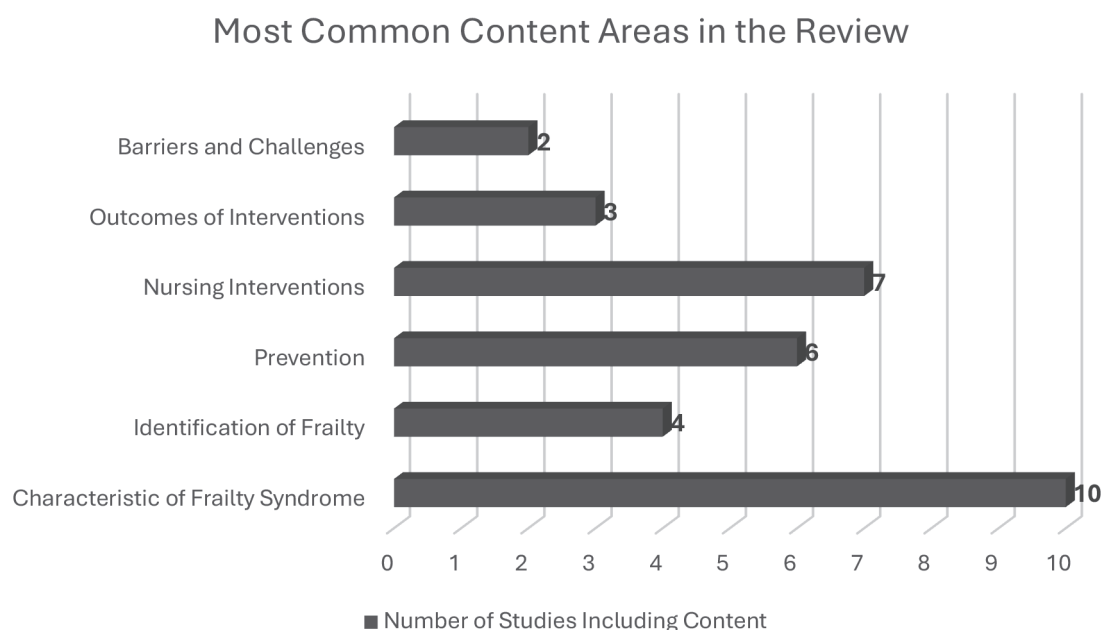


Figure 2. Distribution of the main thematic areas identified in the reviewed studies

Data extraction and analysis

Data extracted from the selected studies included the type of study, population characteristics, frailty assessment tools, type of intervention, the role of nurses, and the main outcomes. The data were analysed descriptively and synthesised into key thematic areas related to frailty identification, prevention, interventions, and nurse-led programmes. Figure 2 shows a visual breakdown of the most common content found in the literature.

Ethical considerations

The review was based exclusively on previously published studies; therefore, ethical approval was not required.

Results

A total of 17 studies were included in the final analysis, comprising systematic reviews, meta-analyses, interventional studies, and observational studies. The analysis of the collected data indicates a growing interest in the issue of frailty; however, significant methodological heterogeneity among the studies was observed.

In terms of frailty identification, two main approaches were predominant: the phenotypic model and the deficit accumulation model [1,2]. Studies based on the Fried frailty phenotype focused mainly on physical components such as slow gait speed and reduced muscle strength, whereas index-based models included a broader spectrum of clinical and functional impairments. The authors of the reviewed studies emphasised that the lack of a unified diagnostic standard makes it difficult to compare study results and assess the effectiveness of interventions [2]. At the same time, most studies consistently indicated that the pre-frailty stage represents a critical period for implementing preventive interventions [1,3].

Interventions combining different forms of therapy demonstrated the highest effectiveness among the analysed therapeutic strategies. Systematic reviews showed statistically significant improvements in functional parameters in individuals participating in resistance and balance training programmes [5,6]. Importantly, studies conducted in home settings indicated greater accessibility and acceptability of interventions in populations with limited mobility [5]. Compared with single-component interventions, approaches combining physical activity with nutritional support produced more sustainable clinical outcomes [6]. However, some studies were characterised by

short follow-up periods, which limited the assessment of long-term intervention effectiveness.

The results of nutritional interventions were more varied. Although protein and vitamin D supplementation showed a beneficial effect on muscle strength parameters, the effects were more pronounced when combined with physical activity programmes [6]. This suggests a synergistic effect of interventions across different areas and confirms the need for a comprehensive approach to older adults.

The analysis of studies concerning nurse-led programmes showed that such interventions are effective in reducing frailty progression and improving patient functioning [9,10]. Community-based studies reported a reduction in hospitalisation rates and improvements in physical performance parameters. In integrated care models, nurses acted as care coordinators, which contributed to better continuity of care and improved interdisciplinary cooperation [11]. However, the number of randomised controlled trials conducted exclusively by nursing teams remains limited, indicating the need for further high-quality research in this area.

In recent years, increasing interest has been observed in the use of digital technologies in frailty management. E-health interventions and telemonitoring demonstrated a positive impact on physical activity levels and increased patient engagement in self-care [7,8]. At the same time, there is still insufficient evidence regarding the long-term effects of these solutions on hospitalisation and mortality. Some studies also highlighted technological barriers, including limited digital competencies among older adults.

In summary, the results of this review indicate that the most effective strategies for preventing frailty progression are comprehensive interventions implemented in the patient's home or community environment, with nurses playing a key role in their implementation. At the same time, methodological heterogeneity and the limited number of long-term studies remain significant limitations in formulating clear clinical recommendations. The characteristics of the included studies are presented in table I.

Discussion

This review confirms that frailty is one of the key challenges in contemporary care for older adults, and its effective management requires a comprehensive approach and interdisciplinary cooperation [1,14]. The analysis of 17 recent publications indicates the growing importance of early identification, complex therapeutic

Table I. Characteristics of the studies included in the literature review

Author	Study Type	Population	Frailty assessment tool	Type of intervention	Role of the nurse	Main outcomes
Del Moral-Pairada, et al. (2025) [9]	Systematic review	Adults ≥65 years	Various tools	Primary care interventions	Coordination, education	Functional improvement, reduced frailty progression
Yao, et al (2025) [5]	Meta-analysis	Prefrail/frail	Fried phenotype	Home-based interventions	Monitoring	Improved mobility
Miang MY, et al. (2025) [7]	Interventional study	Frail	Various	E-health	Telemonitoring	Increased physical activity
Guan et al. (2025) [6]	Review	Prefrail/frail	Phenotype	Nutritional interventions	Dietary education	Improved muscle strength
Lee et al. (2025) [12]	Review	≥65 years	Various	Oral frailty interventions	Education	Improved nutritional parameters
Kim (2024) [1]	Review	≥65 years	Phenotype/ Frailty Index	–	–	Frailty as a dynamic condition
Liu et al. (2024) [4]	Population-based study	Older adults	Frailty Index	–	–	Environmental factors associated with frailty
Liu et al. (2024) [3]	Meta-analysis	Older adults with diabetes ≥65 years	Various	–	–	High prevalence of frailty
Mack et al. (2025) [11]	System analysis	Older adults	–	Model of care	System-level coordination	Integration of care
Tran R, et al. (2025) [13]	Interventional study protocol	Frail	Various	Intensive intervention	Participation in intervention	Planned evaluation of intensive rehabilitation intervention
Han (2023) [8]	Review	Frail	Various	E-health	Digital support	Improved quality of life
Lee et al. (2025) [10]	Quasi-experimental study	Prefrail	Phenotype	Nurse-led programme	Intervention leader	Slowing frailty progression
Other studies [2,14-17]	Various	≥65 years	Various	Comprehensive interventions	Education/monitoring	Moderate effectiveness

interventions, and the integration of community-based care.

One of the key conclusions from the literature analysis is that frailty is not an inevitable consequence of ageing, but rather a dynamic process with potentially reversible characteristics, particularly at the pre-frailty stage [1]. This means that interventions implemented at an early stage may slow down or even halt the progression of frailty. In this context, the role of the nurse as a professional who maintains direct and regular contact with the patient becomes fundamental.

Early identification of frailty is one of the key elements in the effective prevention of functional decline in older adults [1,2]. The literature emphasises that recognising the pre-frailty stage allows preventive measures to be implemented before functional impairments become established and independence is lost [1,3]. In clinical practice, this means the need to use simple and accessible screening tools in primary care and community care settings [2].

Tools such as the Fried phenotype and the Frailty Index allow for the early identification of individuals at risk of health deterioration and enable referral to appropriate intervention programmes [1,2]. The implementation of routine screening may contribute to reducing hospitalisation rates, improving patients' quality of life, and lowering healthcare costs [4,3].

The results of this review clearly indicate that the most effective interventions are those that include a combination of physical activity, nutritional support, and educational components [5,6]. This approach is consistent with the biopsychosocial model of care for older adults [1]. Programmes based on a single component, such as dietary supplementation alone, produce limited effects, which confirms the need for comprehensive care planning [5,6]. The effectiveness of interventions aimed at reducing frailty progression results from their impact on key pathophysiological mechanisms associated with the ageing process [1,3]. Regular physical activity, especially resistance and balance training, improves muscle strength, postural stability, and functional capacity, which translates into a reduced risk of falls and loss of independence [1,5,6]. Adequate nutritional support, particularly sufficient protein intake and vitamin D supplementation, may counteract sarcopenia and improve overall physical performance in older adults [6]. Combining these interventions with health education increases patient awareness and supports long-term lifestyle changes [6,9].

Particularly important are the findings of studies concerning nurse-led programmes. Nurse-led interventions demonstrated improvements in functional parameters

and reductions in hospitalisation rates [9,10]. This suggests that expanding nurses' competencies in frailty assessment and preventive programme implementation may have a measurable impact on the functioning of the healthcare system. In the context of physician shortages and an ageing population, strengthening the role of nurses as care coordinators appears to be a justified and necessary direction for healthcare systems [11]. Due to their regular contact with patients in primary and community care, nurses are in a unique position to identify early signs of functional decline and implement preventive measures [9]. In many healthcare systems, models of care based on expanded nursing competencies are being developed, including educational programmes, patient monitoring, and coordination of interdisciplinary care. Such an approach improves continuity of care and may contribute to more efficient use of healthcare resources [11].

At the same time, it is important to note the methodological heterogeneity of the analysed studies. The lack of a uniform standard for frailty assessment makes it difficult to compare results and formulate clear clinical recommendations [2]. Differences concern both the assessment tools used (phenotype vs. Frailty Index), as well as the duration of interventions and outcome measures. Some studies were based on short observation periods, which limits the ability to assess the long-term effects of interventions.

Modern technologies represent a promising direction in the development of care for frail older adults. Telemonitoring and e-health interventions have demonstrated improvements in physical activity and quality of life [7,8]. Tools such as mobile applications, e-health platforms, and telemonitoring systems allow for regular monitoring of physical activity, health parameters, and adherence to therapeutic recommendations. The implementation of these solutions in nursing practice may increase patient engagement in self-care and facilitate early detection of health deterioration. However, their implementation is associated with organisational challenges and the need to develop digital competencies among both healthcare professionals and patients. There is still a lack of long-term studies evaluating the impact of these solutions on hard clinical outcomes such as mortality or rehospitalisation [2,7,8].

From the perspective of nursing practice, it is important to introduce routine frailty screening in primary care and community care. Standardisation of assessment tools and the implementation of clear care pathways could increase the effectiveness of preventive measures. It also appears necessary to develop specialised geriatric competencies among nurses [2].

It should be emphasised that most studies originate from highly developed countries, which may limit the generalisability of the results to other healthcare systems. Further research taking into account organisational and cultural differences is needed. In summary, nurses play a key role in the identification and management of frailty. The most promising strategies include comprehensive interventions implemented in the patient's home or community environment, supported by digital technologies.

Conclusions

Frailty is a significant health problem in the older adult population, and its early identification – particularly at the pre-frailty stage – is crucial for preventing the progression of functional decline. The most effective interventions for improving the functional status of older adults are those combining physical activity, nutritional support, and health education, especially when implemented in home or community settings. Nurses play an important role in frailty identification, planning preventive interventions, and monitoring care outcomes, and they may act as care coordinators for older adults. At the same time, the methodological heterogeneity of studies and the lack of a uniform standard for frailty assessment indicate the need for further research using standardised diagnostic tools and longer follow-up periods. The findings of this review indicate that nurse-led interventions and early frailty screening in primary and community care may play an important role in reducing frailty progression, improving functional outcomes, and optimising healthcare resource utilisation in ageing populations.

Limitations of the review

This review has several limitations. The methodological heterogeneity of the analysed studies, including differences in frailty definitions, assessment tools, and outcome measures, made direct comparison of results difficult. Some studies had short follow-up periods, which limited the assessment of the long-term effectiveness of interventions, particularly in the case of digital solutions. Additionally, most of the analysed publications originated from highly developed countries, which may limit

the generalisability of the findings. It should also be noted that this study was conducted as a systematic literature review and did not include a meta-analysis.

Implications for practice and future research

The results of this review indicate the need to introduce routine frailty screening in primary care and community care settings. Nurses, who remain in regular contact with older adults, may play a key role in identifying the pre-frailty stage and planning individual preventive interventions. From a clinical practice perspective, it is particularly important to implement interventions that combine physical activity, nutritional support, and health education.

The development of geriatric competencies among nurses may contribute to increasing the effectiveness of preventive measures and reducing hospitalisation rates. In the field of scientific research, there is a need for randomised controlled trials evaluating the long-term effectiveness of nurse-led programmes and their cost-effectiveness. Standardisation of frailty assessment tools is also necessary to improve the comparability of research findings. An important direction for future research is the evaluation of digital technologies, such as telemonitoring and e-health interventions, which may support the care of older adults with frailty.

Author contributions: IS and SK contributed equally to this work and were responsible for the literature search, data analysis, and preparation of the manuscript. GP contributed to the study concept and design, supervised the review process, and critically revised the manuscript for important intellectual content. All authors contributed to the interpretation of the data, reviewed the manuscript, and approved the final version of the manuscript.

Funding: This research received no external funding.

Ethical statement: The review was based exclusively on previously published studies; therefore, ethical approval was not required.

Conflict of interest
None

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