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# Clinical Frailty Scale - frailty assessment and rehabilitation potential

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## ABSTRACT

**Background:** Studies show a significant increase in frailty prevalence among older adults worldwide. Fortunately, several well-established and user-friendly screening tools can effectively identify frailty in older adults.

**Objectives:** This article examines the Clinical Frailty Scale's effectiveness in informing treatment decisions for older adults in ambulatory care settings, analyzing its potential to improve patient care.

**Methods:** On April 1, 2024, the PubMed database was searched for articles on the Clinical Frailty Scale in elderly patients. The 116 most pertinent and current articles, written in English and published within the past few years, were analyzed, and 38 were selected and categorized by content and topic.

**Limitations:** This study is limited because it is not a meta-analysis and thus does not examine the quality of the evidence presented in each article.

**Conclusions:** Frailty research has illuminated aging and its potential biological causes. The Clinical Frailty Scale effectively identifies vulnerable individuals. By using the CFS to assess frailty risk, healthcare providers can personalize treatment plans and improve overall care for older adults.

**Keywords:** Frailty, Clinical Frailty Scale, Ambulatory Care, Geriatric Medicine

## INTRODUCTION

As the global population ages rapidly, with the number of people aged 65 and over projected to surge from 8.5% to nearly 25% by 2050, frailty has become increasingly crucial in geriatric medicine. Introduced almost three decades ago, frailty provides a valuable framework for understanding and evaluating the complex health of older adults. [1] Frailty is a growing concern in older adults, characterized by a gradual decline in the body's resilience and overall function across multiple systems. This vulnerability increases the risk of adverse health outcomes, such as falls, disabilities, hospitalizations, and even death. Frail older adults have a diminished capacity to cope with everyday stressors and sudden health challenges. [2] The burgeoning older adult population presents a growing public health challenge. With age comes a heightened risk of chronic diseases like diabetes, stroke, Alzheimer's, and Parkinson's. Over 80% of those over 65 have at least one such condition, rising to three by age 75. This necessitates a global conversation around managing this demographic's physical, psychological, and healthcare needs. Age-related decline, for example, translates to concerns about increased falls, hospitalizations, and loss of independence. [3]

Following the World Health Organization's definition, screening involves applying simple tests to a healthy population to identify individuals with risk factors or early signs of disease before symptoms appear. In frailty, an ideal screening tool would be quick and efficient, effectively differentiating individuals into three categories: frail, pre-frail (at risk of becoming frail), and those with a low risk of poor health outcomes. Additionally, this optimal tool would possess high positive and negative predictive values, ensuring accurate identification of those needing further evaluation and those who would not benefit from it. [4] Early identification of frailty offers benefits beyond individual patient care, positively impacting healthcare systems. Proactive management of frailty empowers healthcare providers to optimize resource allocation. This can translate to reduced unnecessary hospital admissions, emergency department visits, and long-term care placements, ultimately easing the burden on healthcare systems. [5]

Developed for the Canadian Study of Health and Aging, the Clinical Frailty Scale (CFS) is a tool that relies on clinical judgment to assess frailty. Initially intended to summarize the findings

of a more extensive geriatric assessment, the CFS proved valuable in facilitating discussions about patient frailty among physicians and nurses from various specialties involved in the study. [6] The CFS is a one-page document, taking 30 seconds to one minute per patient for the clinician to complete. [5] Two variations of the CFS exist and have seen widespread use in research and clinical settings. The original version employed a scoring system from 1 (very fit) to 7 (severely frail). In 2007, a revised nine-point scale was introduced to capture the categories of "very severely frail" and "terminally ill," which may necessitate distinct care approaches. The CFS assesses frailty by examining specific domains like comorbidity, functional ability, and cognition. This evaluation results in a score ranging from 1 (very fit) to 9 (terminally ill). The application of the CFS involves observing the patient's movement patterns and inquiring about their daily activities and level of independence (including bathing, dressing, housework, navigating stairs, independent outings, shopping, managing finances, medication adherence, and meal preparation). Multiple research reviews have highlighted the CFS as a promising tool for frailty screening. Consequently, the Clinical Frailty Scale is a valuable asset in ambulatory care settings, enabling healthcare professionals to identify and manage frailty in older adult populations effectively. [7]

| CFS Score | Frailty Level | Description |
|---|---|---|
| **1** | Very Fit | Robust, active, energetic, and motivated people commonly exercise regularly and are among the fittest for their age. |
| **2** | Well | People with no active disease symptoms are less fit than those in category 1. They often exercise or are very active occasionally, e.g., seasonally. |
| **3** | Managing Well | People whose medical problems are well controlled but are not regularly active beyond routine walking. |
| **4** | Vulnerable | While not dependent on others for daily help, symptoms often limit activities. A common complaint is being “slowed up” and/or tired during the day. |
| **5** | Mildly Frail | These people often have more evident slowing and need help in high-order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping, walking outside alone, meal preparation, and housework. |

| | | |
|---|---|---|
| **6** | Moderately Frail | People need help with all outdoor activities and with keeping the house. Inside, they often have problems with stairs, need help bathing, and might need minimal assistance (curing, standby) with dressing. |
| **7** | Severely Frail | Entirely dependent on personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months). |
| **8** | Very Severely Frail | Entirely dependent, approaching the end of life. Typically, they could not recover even from a minor illness. |
| **9** | Terminally Ill | Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail. |

Table 1. Clinical Frailty Scale based on Canadian Study on Health & Aging. [8]

This article examines the Clinical Frailty Scale (CFS) 's predictive value for older adults in ambulatory care. By reviewing existing research and analyzing its ability to predict health outcomes, the article explores the potential benefits of using the CFS to guide treatment decisions and improve patient care in family medicine settings.

## DISCUSSION

The Clinical Frailty Scale (CFS) has gained traction across various healthcare settings, informing decision-making based on an individual's frailty level. This allows for tailored care plans that address each patient's specific needs. While debate exists regarding optimal care approaches for different frailty levels, there is a consensus among researchers and clinicians about the significant impact frailty has on older adults, their caregivers, and the healthcare system as a whole. The CFS's versatility is reflected in its global application across diverse clinical and research contexts. It's a valuable tool for identifying frail older adults who are particularly vulnerable to adverse health outcomes due to a combination of internal and external stressors. Additionally, the fragmentation of treatment and healthcare services can further compromise the quality of care received by this susceptible population. [9] A pressing need exists for evidence-based guidelines to support the implementation of frailty screening and management strategies within primary care settings. Establishing a consensus on a clinically

valuable frailty assessment tool and evaluating the impact of interventions on patient-centered outcomes represent current research priorities. [10]

The Clinical Frailty Scale (CFS) might be more practical for clinical application than other frailty assessment tools due to its lower rate of missing data. Assigning a frailty score involves clinical judgment informed by the screening criteria. This judgment considers factors that broadly categorize the individual's level of fitness or frailty. [11] The results show that frail patients (CFS6–9) of all ages admitted to the hospital had significantly higher hospital mortality than fit patients (CFS1–3). [12] A score of $\geq$4 on the Clinical Frailty Scale (CFS) is used to identify frailty. [13] The Clinical Frailty Scale (CFS) is a valuable tool for initial frailty screening in older adults due to its focus on functional independence. A study conducted at a senior clinic with ambulatory patients demonstrated a strong correlation between the CFS and two well-established frailty measures: the CHS frailty scale and the frailty index. Given its simplicity and ease of administration, this finding supports the CFS's potential as a practical screening tool for real-world clinical settings. [14]

Older adults are a highly heterogeneous group with health and functional status differences. [15] The Clinical Frailty Scale (CFS) holds particular value in acute care settings for older adults due to its ability to assess baseline and current functional status. Unlike static assessments, the CFS inquires about an individual's functional skills two weeks before their acute illness, providing a crucial baseline for comparison. Furthermore, the CFS incorporates the patient's health status, offering a comprehensive picture of their functional decline. This detailed assessment aligns with crucial Comprehensive Geriatric Assessment (CGA) aspects, and numerous studies support the CFS's construct validity and clinical relevance in geriatric populations. By capturing both baseline and current function, the CFS empowers healthcare professionals to make more accurate prognoses, set more appropriate goals, and ultimately deliver more personalized and effective care for critically ill older patients. [16]

Mounting evidence suggests that biological age, as reflected by frailty, can significantly predict mortality more than chronological age alone. [17, 18] A cross-sectional observational study conducted in the respiratory ward of The Ottawa Hospital, a significant tertiary care academic center in Ottawa, Ontario, Canada, from December 2016 to June 2019, examined frailty among patients. The Clinical Frailty Scale (CFS) assessment revealed a frailty spectrum within the study group of 99 patients. Fourteen (14%) were classified as well or managing well, indicating

minimal frailty. A more significant portion, 33 (33%), fell into the vulnerable category. Eighteen (18%) were identified as mildly frail, and a considerable number, 34 (34%), exhibited moderate or severe frailty, according to the CFS. Notably, 85 patients (86% of the cohort) were categorized as frail overall, highlighting the prevalence of frailty within this population admitted to the respiratory ward. Advanced age is associated with an increased risk of morbidity and mortality. However, research suggests a paradox: women in the general population tend to exhibit higher frailty scores than age-matched men despite experiencing lower overall mortality rates. [19] This vulnerability stems from a confluence of factors. Age itself triggers a pro-inflammatory state, increasing the risk of complications and worsening recovery. Additionally, declining organ function and the use of multiple medications (polypharmacy) further elevate susceptibility to adverse events. Nutritional deficiencies and social isolation, common among older adults, can impede recovery. Recognizing these vulnerabilities is crucial for optimizing surgical outcomes in this population. By tailoring preoperative assessments and perioperative management strategies, healthcare professionals can ensure better patient well-being. [20]

The observational VIP-2 study, a large-scale investigation involving 3920 patients from 22 countries, was conducted across 12 months in 2018-2019. Focusing on patients aged 80 and above who were acutely admitted to intensive care units (ICUs), the study aimed to explore how various geriatric syndromes – frailty, co-morbidity, activity of daily life, and cognition – influence and interact with each other, impacting a range of outcomes. To assess frailty, the VIP-2 study employed a rigorous approach. Two independent ICU staff members, blinded to each other's evaluations, evaluated each patient within the first 24 hours of ICU admission. The study revealed an interesting trend regarding the effectiveness of frailty assessment. Concordance between raters – that is, agreement between the two ICU staff members – was highest when both were nurses or physicians. Conversely, mixed pairs (nurse and physician) showed slightly lower deal. Similarly, the study found that relying solely on information from medical records and caregivers (instead of patients themselves) yielded somewhat more consistent results. The assessment utilized the Clinical Frailty Scale (CFS) and incorporated patient input whenever possible. When patient input wasn't available, information was gathered from caregivers or the patient's medical and nursing records. The Clinical Frailty Scale (CFS) demonstrated independent predictive value for 30-day mortality, performing similarly to a model that included cognition and functional disability. This finding reinforces the CFS's criterion validity as a strong predictor of short-term mortality risk. [21,22 ] Given its ability to function as a continuous measure, the CFS transcends its initial use as a simple screening tool.

This expanded role positions the CFS as a valuable instrument for facilitating the development of risk-adjusted, patient-centered care plans for this at-risk population. [23]

Research suggests a potential link between the severity of dementia and the degree of frailty in older adults. Milder forms of dementia might present alongside milder frailty, while more severe stages of both conditions often appear together. Individuals with mild dementia may struggle to recall recent events while retaining details from the past, and they might repeat questions or have difficulty maintaining routines. They may still manage daily activities independently despite experiencing some degree of frailty. As dementia and frailty progress to moderate stages, individuals may require prompting or assistance with daily tasks even though they retain some long-term memories. In severe cases of both conditions, significant challenges arise in daily activities, and a high level of hands-on assistance may become necessary. This potential correlation between dementia and frailty underscores the importance of comprehensive assessments in older adults. Early identification of both conditions can facilitate the development of appropriate care plans to improve quality of life and well-being. [8]

A study conducted in Saarland, Germany, between 2008 and 2010 investigated healthcare utilization among older adults. Researchers analyzed data from 2,598 participants aged 57 to 84. To assess frailty, they used Fried's five criteria: weakness, slowness, exhaustion, unintentional weight loss, and physical inactivity. The study looked at healthcare utilization across various sectors, including inpatient treatment, outpatient treatment, medications, and nursing care. An analysis revealed a clear link between individual frailty symptoms and total healthcare costs, but not for slowness or weakness. Unintentional weight loss emerged as the most vital factor, associated with €1,329 higher total costs ($p < .01$) than no weight loss. Exhaustion followed closely, linked to €816 higher total costs ($p < .001$), and low physical activity showed a €302 increase ($p < .01$). Interestingly, the impact of exhaustion on costs seemed to be more pronounced for inpatient care along with weight loss. In the outpatient setting, fatigue and weakness were significantly associated with higher costs. Finally, only low physical activity showed a statistically significant link with nursing care costs. The progression of frailty is demonstrably linked to escalating healthcare costs and a decline in quality of life. [24] As resilience diminishes and susceptibility to disability rises, older adults may experience increased dependence on essential activities and a heightened risk of hospitalization. While limited research in India has explored the use of the CFS in acute care settings, its application within the broader geriatric population holds significant promise. The CFS can provide valuable

insights to facilitate early interventions, ultimately improving the quality of life for older adults. [25] Patients with higher CFS scores report a significantly higher prevalence of severe or extreme limitations in their mobility. This diminished mobility can have a cascading effect on various aspects of quality of life, potentially hindering an individual's ability to perform daily activities independently, maintain social connections, and participate in activities they enjoy. [26]

The field of geriatrics is witnessing a surge in the development and application of artificial intelligence (AI) and computational tools. These advancements hold immense promise for revolutionizing how we manage the health and well-being of older adults, particularly in promoting healthy aging. [27] The importance of digital technology is increasing among older adults. There is some potential for AI techniques to contribute towards better frailty identification within residential care. [28] This encompasses telehealth consultations, remote patient monitoring with wearable devices, mobile health apps for self-management, electronic health records for improved care coordination, and even AI-powered tools for personalized medicine. [29] Recent research suggests machine learning can predict patient deterioration using electronic health records. Caregivers were interviewed for non-communicative patients (altered mental status, cognitive issues) to assess functional status. [30] The fast-moving nature of technological advancements means eHealth breakthroughs often encounter distinct policy challenges concerning large-scale implementation. [31]

Frailty, a significant risk factor for persistent disability, can potentially be reversed through lifestyle modifications. This understanding empowers healthcare professionals and policymakers to optimize resource allocation and service accessibility for vulnerable populations. [32] Therefore, assessing frailty severity is a valuable clinical tool for stratifying patients based on their risk of further functional decline. This risk stratification allows healthcare professionals to identify individuals who might benefit most from non-pharmacological interventions, such as rehabilitation programs and comprehensive care planning. The routine integration of these frailty measures into clinical practice warrants further consideration. [33] Primary care teams can be vital in revising quality metrics and funding structures. This revision should emphasize the value of interprofessional collaboration, ensuring that the unique skills of nurses and allied health professionals are fully utilized in delivering exceptional primary care to our most vulnerable elderly population – those struggling with frailty. [34] Primary care for frail patients prioritizes delaying frailty progression,

improving function and quality of life, and preventing unnecessary hospitalization or long-term care placement. [35] To better manage frailty in older adults, primary care should integrate a pathway with screening, shared decision-making on interventions, and referrals to community support. [36]

This study highlights a new challenge – the discrepancy between provider-provider and provider-patient agreement on frailty. Without a universally accepted objective standard for frailty assessment, it's difficult to determine if patients underestimate their frailty, providers overestimate it, or both. Potential contributing factors include negative connotations associated with the term "frailty" and the differing interpretations between laypeople and medical professionals. Additionally, frail older adults themselves might have inaccurate perceptions of their health status, further complicating this issue. [37] Studies have identified key challenges hindering the widespread use of the CFS. These include the lack of clear clinical guidelines for its implementation, difficulties obtaining comprehensive patient history for accurate scoring, and the burden it adds to already high workloads in acute care settings. Interestingly, healthcare professionals' understanding of the CFS and the time required to complete the assessment were not cited as significant barriers. [38]

## CONCLUSIONS

The Clinical Frailty Scale (CFS) has emerged as a valuable tool for assessing frailty in older adults, mainly in ambulatory care settings. This review highlighted its strengths in predicting short-term mortality, enabling risk-adjusted care plans, identifying patients who benefit most from interventions, and ultimately improving quality of life. However, challenges remain, including discrepancies in provider-patient understanding of frailty and implementation hurdles in acute care. Despite these limitations, the CFS holds immense promise for improving care for older adults in ambulatory care. The lack of evidence for clinical decision-making and costs related to screening for frailty in primary care do not improve clinical outcomes. Furthermore,well-designed large sample-sized randomized controlled clinical trials are necessary to help improve our knowledge base.

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