



“Frailty Beyond Aging: Comprehensive Assessment and Nursing Management of Frailty in Hospitalized Older Adults”

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Abstract: Frailty is a multidimensional geriatric syndrome characterized by decreased physiological reserve, diminished resistance to stressors, and increased vulnerability to adverse health outcomes. As global populations continue to age, frailty has emerged as a significant public health concern, particularly among hospitalized older adults. Frail older adults experience higher rates of hospitalization, prolonged hospital stays, functional decline, falls, disability, institutionalization, readmissions, and mortality. Early identification and comprehensive management of frailty are essential to improving patient outcomes and reducing healthcare costs. Nurses play a pivotal role in frailty assessment, prevention, and management due to their continuous patient contact and holistic approach to care. This review explores the concept of frailty, its epidemiology, pathophysiology, assessment tools, clinical implications, management strategies, and the indispensable role of nurses in caring for hospitalized older adults with frailty. Evidence-based interventions including nutritional support, physical activity, medication optimization, psychosocial support, and multidisciplinary collaboration are discussed. The review highlights the importance of integrating frailty assessment into routine clinical practice and emphasizes nursing-led interventions to enhance patient-centered care and healthy aging.

Keywords: Frailty, Older Adults, Geriatric Nursing, Hospitalized Elderly, Frailty Assessment, Comprehensive Geriatric Assessment, Nursing Management, Functional Decline, Sarcopenia, Healthy Aging

Introduction

Population aging is one of the most significant demographic transitions of the twenty-first century. Advances in healthcare, improved sanitation, and better disease management have contributed to increased life expectancy worldwide. Consequently, healthcare systems are witnessing a growing number of older adults requiring hospitalization and long-term care. While aging itself is a natural biological process, frailty represents a distinct clinical syndrome that substantially increases vulnerability to adverse health outcomes (Clegg et al., 2013).

Frailty is often described as a state of decreased physiological reserve across multiple organ systems, resulting in reduced ability to cope with acute stressors such as illness, surgery, hospitalization, or trauma. Frail individuals may appear stable under normal circumstances but experience rapid deterioration when exposed to relatively minor physiological challenges. The syndrome is associated with increased risks of falls, disability, hospitalization, institutionalization, and mortality (Fried et al., 2001).

Hospitalization can be particularly detrimental for frail older adults. Factors such as bed rest, immobility, nutritional deficiencies,

medication-related complications, sleep disturbances, and unfamiliar environments may accelerate functional decline. Therefore, timely recognition and management of frailty are crucial components of quality geriatric care. Nurses occupy a central position in identifying frailty, coordinating multidisciplinary care, implementing preventive strategies, and promoting recovery among hospitalized older adults.

This review examines current evidence regarding frailty assessment and management in hospitalized older adults while emphasizing the critical role of nurses in improving outcomes and enhancing quality of life.

Understanding Frailty

Frailty is a complex clinical syndrome that extends beyond chronological aging. Although advancing age increases susceptibility to frailty, not all older adults become frail. Frailty reflects biological aging and cumulative physiological decline rather than age alone.

The syndrome encompasses physical, psychological, cognitive, and social dimensions. Physical frailty involves weakness, fatigue, reduced endurance, and decreased mobility. Psychological frailty



may include depression, anxiety, and impaired coping mechanisms. Cognitive frailty refers to the coexistence of physical frailty and cognitive impairment without established dementia. Social frailty includes reduced social support, isolation, loneliness, and limited access to community resources.

Frailty exists on a continuum ranging from robustness to pre-frailty and severe frailty. Pre-frailty represents an intermediate stage where interventions can potentially reverse or delay progression. Recognizing frailty early provides opportunities for preventive interventions that may improve outcomes and preserve independence.

Epidemiology of Frailty

Frailty prevalence varies depending on assessment methods, population characteristics, and healthcare settings. Community-based studies estimate that approximately 10–15% of adults aged 65 years and older are frail, while prevalence increases significantly among those aged over 80 years (Collard et al., 2012). Hospitalized older adults exhibit substantially higher rates of frailty than community-dwelling populations. Studies suggest that between 30% and 60% of hospitalized elderly patients meet criteria for frailty. The prevalence is particularly high among patients admitted for cardiovascular diseases, chronic respiratory conditions, cancer, orthopedic injuries, and surgical procedures.

Women generally demonstrate higher rates of frailty than men, possibly due to longer life expectancy, hormonal changes, and greater prevalence of chronic conditions. Socioeconomic deprivation, malnutrition, chronic diseases, sedentary lifestyles, and social isolation further contribute to frailty development.

The growing prevalence of frailty presents major challenges for healthcare systems worldwide, emphasizing the need for effective screening and management strategies.

Pathophysiology of Frailty

Frailty develops through complex interactions among biological, physiological, environmental, and psychosocial factors. Multiple mechanisms contribute to progressive decline in physiological reserve.

Chronic low-grade inflammation is considered a central contributor to frailty. Elevated levels of inflammatory markers such as interleukin-6, tumor necrosis factor-alpha, and C-reactive protein have been consistently associated with frailty. Persistent inflammation promotes muscle wasting, reduced mobility, and impaired immune function.

Age-related hormonal changes also play a significant role. Declining levels of testosterone, estrogen, growth hormone, and insulin-like growth factor contribute to sarcopenia, decreased bone density, and reduced physical performance.

Sarcopenia, characterized by progressive loss of skeletal muscle mass and strength, is closely linked to frailty. Reduced muscle function impairs mobility, balance, and independence, increasing vulnerability to falls and disability.

Neurological changes, mitochondrial dysfunction, oxidative stress, nutritional deficiencies, and immune dysregulation further contribute to the pathogenesis of frailty. The cumulative effects of these processes result in diminished resilience and increased susceptibility to adverse outcomes.

Risk Factors for Frailty

Several factors contribute to the development and progression of frailty among older adults. Advanced age remains one of the strongest predictors due to cumulative physiological decline.

Chronic illnesses such as diabetes mellitus, chronic obstructive pulmonary disease, heart failure, chronic kidney disease, cancer, and arthritis significantly increase frailty risk. Multimorbidity accelerates physiological deterioration and reduces adaptive capacity.

Malnutrition and unintended weight loss are major contributors to frailty. Insufficient protein intake leads to muscle wasting and impaired immune function. Physical inactivity further accelerates sarcopenia and functional decline.

Polypharmacy is another important risk factor. Older adults frequently take multiple medications, increasing the risk of adverse drug reactions, dizziness, falls, cognitive impairment, and hospitalization.

Psychological factors such as depression, anxiety, cognitive impairment, and loneliness also contribute to frailty development. Social isolation and inadequate support networks can exacerbate physical and emotional decline.

Environmental factors including poverty, poor housing conditions, limited healthcare access, and lack of community resources further increase vulnerability among older adults.

Clinical Manifestations of Frailty

Frailty manifests through a combination of physical, psychological, and functional impairments. Common physical symptoms include weakness, fatigue, decreased grip strength, slow walking speed, unintentional weight loss, and reduced physical activity.



Hospitalized frail patients often demonstrate decreased mobility, balance problems, frequent falls, prolonged recovery from illness, and increased dependence on caregivers. Functional limitations may affect activities of daily living such as bathing, dressing, eating, and toileting.

Psychological manifestations include depression, anxiety, reduced motivation, and impaired coping abilities. Cognitive changes may involve memory problems, attention deficits, and decreased executive functioning.

The severity of manifestations varies among individuals and often fluctuates over time. Comprehensive assessment is therefore necessary to identify specific deficits and guide individualized care planning.

Frailty Assessment in Hospitalized Older Adults

Early identification of frailty is essential for preventing complications and optimizing care. Numerous assessment tools have been developed to identify frailty in clinical settings.

Fried Frailty Phenotype

The Fried Frailty Phenotype remains one of the most widely used assessment models. It evaluates five criteria: unintentional weight loss, weakness, exhaustion, slow gait speed, and low physical activity. Individuals meeting three or more criteria are classified as frail, while those meeting one or two criteria are considered pre-frail (Fried et al., 2001).

This model focuses primarily on physical frailty and provides a practical framework for identifying at-risk individuals.

Frailty Index

The Frailty Index is based on the accumulation of deficits model developed by Rockwood and colleagues. It measures frailty by calculating the proportion of health deficits present, including symptoms, diseases, disabilities, and laboratory abnormalities.

The index recognizes frailty as a multidimensional condition and offers a comprehensive evaluation of overall health status.

Clinical Frailty Scale

The Clinical Frailty Scale (CFS) is a simple and practical tool widely used in hospital settings. It categorizes patients on a scale ranging from very fit to terminally ill based on functional ability, comorbidities, and cognitive status.

The CFS facilitates rapid screening and assists clinicians in identifying patients requiring comprehensive assessment.

Edmonton Frail Scale

The Edmonton Frail Scale assesses multiple domains including cognition, general health status, social support, medication use, nutrition, mood, continence, and functional performance. Its

multidimensional approach makes it valuable in acute care settings.

Comprehensive Geriatric Assessment

Comprehensive Geriatric Assessment (CGA) is considered the gold standard for evaluating frail older adults. CGA involves a multidisciplinary evaluation of medical, psychological, functional, social, and environmental factors.

The assessment guides individualized care planning and has been associated with improved outcomes, reduced institutionalization, and enhanced quality of life.

Consequences of Frailty During Hospitalization

Frailty significantly influences hospitalization outcomes. Frail patients are more likely to experience prolonged hospital stays due to slower recovery and increased complication rates.

Hospital-acquired complications such as delirium, pressure injuries, infections, falls, malnutrition, and functional decline occur more frequently among frail individuals. Even brief periods of bed rest can result in substantial muscle loss and reduced independence.

Frailty also increases the likelihood of intensive care admission, hospital readmission, institutionalization, and mortality. Healthcare costs associated with frailty are substantial due to increased resource utilization and prolonged care requirements.

Recognition of frailty enables healthcare professionals to anticipate complications and implement preventive interventions early in the hospitalization process.

Management of Frailty in Hospitalized Older Adults

Effective frailty management requires a comprehensive and individualized approach addressing physical, psychological, nutritional, and social factors.

Nutritional Interventions

Malnutrition is a major contributor to frailty progression. Nutritional assessment should be conducted upon hospital admission to identify deficiencies and risk factors.

Adequate protein intake is essential for maintaining muscle mass and strength. Dietary supplementation, vitamin D replacement, and individualized meal planning can support recovery and prevent further decline.

Nurses play a critical role in monitoring food intake, identifying swallowing difficulties, encouraging adequate hydration, and collaborating with dietitians to optimize nutritional status.

Physical Activity and Rehabilitation



Exercise remains one of the most effective interventions for frailty management. Resistance training, balance exercises, flexibility activities, and walking programs improve muscle strength, mobility, and functional independence.

Early mobilization during hospitalization helps prevent deconditioning and reduces complications associated with prolonged bed rest. Individualized rehabilitation programs developed by physiotherapists and supported by nurses promote recovery and maintain functional capacity.

Medication Optimization

Polypharmacy contributes significantly to frailty and adverse outcomes. Medication reviews should identify potentially inappropriate medications, drug interactions, and unnecessary prescriptions.

Deprescribing strategies can reduce medication burden while minimizing adverse effects. Nurses assist by monitoring therapeutic responses, identifying medication-related problems, and educating patients regarding safe medication use.

Management of Chronic Conditions

Effective control of chronic diseases is essential for reducing frailty progression. Optimizing treatment for cardiovascular disease, diabetes, respiratory disorders, and other chronic conditions improves physiological reserve and overall health.

Coordinated multidisciplinary care ensures that treatment plans align with patients' goals, preferences, and functional abilities.

Psychological Support

Depression, anxiety, and social isolation frequently accompany frailty. Psychological support interventions including counseling, emotional support, cognitive stimulation, and social engagement activities contribute to improved well-being.

Hospitalization may exacerbate feelings of vulnerability and dependence. Nurses provide reassurance, therapeutic communication, and emotional support while facilitating family involvement in care.

Fall Prevention

Falls represent a major concern among frail hospitalized older adults. Comprehensive fall prevention strategies include environmental modifications, mobility assistance, medication review, balance training, and use of assistive devices.

Regular risk assessments help identify vulnerable patients and guide targeted interventions.

The Role of Nurses in Frailty Assessment and Management

Nurses play a fundamental role in identifying and managing frailty throughout hospitalization. Their continuous presence at the

bedside enables early recognition of subtle changes in physical and functional status.

Nurses are often the first healthcare professionals to identify signs of frailty such as weakness, weight loss, decreased mobility, fatigue, or cognitive changes. Routine screening during admission facilitates timely referral for comprehensive geriatric assessment. In assessment activities, nurses gather detailed information regarding functional abilities, nutritional status, cognitive function, social support, medication use, and psychological well-being. Accurate documentation enhances interdisciplinary communication and continuity of care.

Care planning is another critical nursing responsibility. Nurses collaborate with physicians, physiotherapists, occupational therapists, dietitians, pharmacists, social workers, and family members to develop individualized interventions that address patient-specific needs.

Patient education forms an essential component of nursing care. Nurses educate older adults and caregivers regarding nutrition, exercise, medication management, fall prevention, chronic disease management, and healthy aging practices.

Nurses also promote mobility and independence by encouraging participation in activities of daily living and preventing unnecessary bed rest. Early mobilization strategies supported by nursing staff can significantly reduce functional decline during hospitalization.

Advocacy is another important nursing function. Nurses advocate for patient-centered care, appropriate resource allocation, and inclusion of patient preferences in clinical decision-making. Through advocacy, nurses help ensure that frail older adults receive compassionate, dignified, and evidence-based care.

Multidisciplinary Approach to Frailty Management

Frailty management requires collaboration among multiple healthcare disciplines. Physicians contribute diagnostic expertise and medical management. Nurses coordinate care and monitor patient progress. Physiotherapists develop exercise and rehabilitation programs, while occupational therapists focus on functional independence and environmental adaptation.

Dietitians address nutritional needs and optimize dietary interventions. Pharmacists assist with medication reviews and deprescribing efforts. Social workers help address social determinants of health, caregiver support, and discharge planning. The multidisciplinary approach promotes holistic care, reduces fragmentation, and enhances patient outcomes. Effective communication among team members is essential for successful frailty management.



Future Directions in Frailty Care

Increasing recognition of frailty has stimulated development of innovative approaches to assessment and management. Digital health technologies, wearable monitoring devices, artificial intelligence, and telehealth platforms offer opportunities for early detection and ongoing monitoring of frailty.

Research continues to explore biomarkers, personalized interventions, and integrated care models aimed at preventing frailty progression. Healthcare systems are increasingly incorporating frailty screening into routine practice to support proactive care planning.

Future nursing practice will likely involve greater use of technology-enhanced assessment tools, predictive analytics, and community-based interventions that support healthy aging and reduce hospitalization risks.

Conclusion

Frailty is a prevalent and clinically significant syndrome among hospitalized older adults that increases vulnerability to adverse outcomes including falls, disability, prolonged hospitalization, readmissions, and mortality. Early identification through validated assessment tools enables timely intervention and individualized care planning. Effective management requires comprehensive strategies addressing nutrition, physical activity, medication optimization, psychological well-being, chronic disease management, and social support.

Nurses occupy a central role in frailty assessment and management due to their continuous patient interaction, holistic perspective, and coordination of multidisciplinary care. Through early screening, patient education, advocacy, mobility promotion, and individualized interventions, nurses significantly contribute to improved outcomes and enhanced quality of life among frail older adults. Integrating routine frailty assessment into hospital practice and strengthening nursing competencies in geriatric care are essential steps toward achieving optimal care for the growing older adult population.

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