

Frailty screening at emergency department triage: study of prevalence and predictive value in older adults

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Background: The global population is aging rapidly, and emergency departments (EDs) increasingly serve as a primary point of care for older adults. Frailty, characterized by reduced physiological reserve and heightened vulnerability to stressors, is a strong predictor of morbidity, hospitalization, and mortality. Despite its clinical relevance, frailty assessment at ED triage remains underutilized, particularly in Indian settings. The clinical frailty scale (CFS) is a simple, validated tool suitable for rapid triage evaluation, yet regional data on its prevalence and prognostic utility are limited.

Objectives: To determine the prevalence of frailty among ED patients aged ≥ 65 years and evaluate the ability of CFS to predict hospital admission and 30-day mortality.

Methods: We conducted a prospective observational study from October 1, 2024, to October 1, 2025, at a 30-bed tertiary-care ED at KIMSHEALTH, Trivandrum, South India, with an annual census exceeding 45,000 adult patients. Consecutive patients aged ≥ 65 years presenting to triage were assessed using the CFS; frailty was defined as CFS ≥ 5 . Outcomes included hospital admission and 30-day mortality, with predictive performance evaluated using area under the curve, sensitivity, specificity, and adjusted odds ratios. Patients in cardiac arrest, requiring immediate resuscitation, or lacking a caregiver history for CFS scoring were excluded.

Results: Among 1,250 older adults assessed at triage, frailty was highly prevalent: 52.4% were frail, 18.2% vulnerable, and 29.4% non-frail. Frail patients experienced markedly worse outcomes compared with non-frail counterparts. Hospital admission and prolonged length of stay (>72 hours) increased progressively across frailty categories, affecting approximately 45% of frail patients versus about 20% of non-frail individuals. In-hospital mortality rose from roughly 3% in non-frail patients to nearly 12% in frail patients, while 30-day mortality increased from about 4% to 15%. Adjusted analyses demonstrated that frailty independently predicted adverse outcomes, with odds ratios of approximately 3.5 for hospital admission, 3.0 for ICU admission, 3.8 for prolonged ED stay, 4.2 for in-hospital mortality, and 4.5 for 30-day mortality.

Conclusion: Frailty is highly prevalent among older adults presenting to ED triage and serves as a powerful independent predictor of admission, critical care requirement, and short-term mortality. Integrating routine frailty screening into ED workflows can enhance early geriatric risk stratification, support timely clinical decision-making, and potentially improve patient outcomes.

Keywords: Frailty, clinical frailty scale, emergency department, triage, older adults, mortality prediction.