

# 5-factor modified frailty index

Many countries are facing an aging population. As people live longer, surgeons face the prospect of operating on increasingly older patients. Traditional teaching is that with older age, these patients face an increased risk of mortality and morbidity, even to a level deemed too prohibitive for surgery. However, this is not always true. An active 90-year-old patient can be much fitter than an overweight, sedentary 65-year-old patient with comorbidities. Recent literature shows that frailty—an age-related cumulative decline in multiple physiological systems—is therefore a better predictor of mortality and morbidity than chronological age alone. Despite recognizing frailty as an essential tool in identifying vulnerable surgical patients, many surgeons still shun objective tools <sup>1)</sup>

The 5-factor modified frailty index (5-MFI) is a tool used to assess frailty in older adults. It is based on the concept of cumulative deficit, where the presence of multiple health deficits indicates increased frailty.

The 5-MFI incorporates five specific health deficits or factors to assess an individual's level of frailty. These factors include:

Chronic health conditions: The presence of chronic illnesses such as diabetes, heart disease, arthritis, or respiratory conditions. Functional limitations: Difficulties in performing activities of daily living (ADLs) or instrumental activities of daily living (IADLs), such as bathing, dressing, meal preparation, or managing finances. Cognitive impairment: The presence of cognitive decline or impairment, including problems with memory, attention, or decision-making. Polypharmacy: The use of multiple medications, which can increase the risk of adverse drug reactions and interactions. Nutritional status: Poor nutrition or unintentional weight loss, which can indicate inadequate intake or underlying health issues. Each factor is assigned a score of 0 or 1, with 0 indicating the absence of the deficit and 1 indicating its presence. The scores for all five factors are summed, resulting in a total score ranging from 0 to 5. A higher score indicates a higher level of frailty, with 5 representing the maximum level of frailty.

The 5-MFI provides a quick and simple method to assess frailty and can be used in clinical settings or research studies. It helps healthcare professionals identify older adults who may benefit from interventions and support to prevent or manage frailty-related complications.

+1 Diabetes mellitus
+1 Increased blood pressure requiring medication
+1 Status (nonindependent functional status)
+1 Respiratory pathology (history of COPD or pneumonia)
+1 Failure of heart (congestive heart failure within 30 days of surgery)
<b>5-Item Modified Frailty Index Score</b>

The mFI-5 and the mFI-11 are equally effective predictors in all sub-specialties and the mFI-5 is a strong predictor of mortality and postoperative complications. It has credibility for future use to study frailty within the NSQIP database. It also has potential in other databases and for clinical use <sup>2)</sup>

The [5-factor modified frailty index](#) was a more useful associated factor of in-hospital complications

than chronological age in patients younger than 74 years undergoing [unruptured intracranial aneurysm surgery](#)<sup>3)</sup>.

1)

Tian BWCA, Stahel PF, Picetti E, Campanelli G, Di Saverio S, Moore E, Bensard D, Sakakushev B, Galante J, Fraga GP, Koike K, Di Carlo I, Tebala GD, Leppaniemi A, Tan E, Damaskos D, De'Angelis N, Hecker A, Pisano M, YunfengCui, Maier RV, De Simone B, Amico F, Ceresoli M, Pikoulis M, Weber DG, Biffi W, Beka SG, Abu-Zidan FM, Valentino M, Coccolini F, Kluger Y, Sartelli M, Agnoletti V, Chirica M, Bravi F, Sall I, Catena F. Assessing and managing frailty in emergency laparotomy: a WSES position paper. World J Emerg Surg. 2023 Jun 24;18(1):38. doi: 10.1186/s13017-023-00506-7. PMID: 37355698.

2)

Subramaniam S, Aalberg JJ, Soriano RP, Divino CM. New 5-Factor Modified Frailty Index Using American College of Surgeons NSQIP Data. J Am Coll Surg. 2018 Feb;226(2):173-181.e8. doi: 10.1016/j.jamcollsurg.2017.11.005. Epub 2017 Nov 16. PMID: 29155268.

3)

Kuwabara M, Ikawa F, Michihata N, Sakamoto S, Okazaki T, Hosogai M, Maeda Y, Horie N, Kurisu K, Fushimi K, Yasunaga H. The 5-Factor Modified Frailty Index as a More Useful Associated Factor Than Chronological Age After Unruptured Cerebral Aneurysm Surgery: A Nationwide Registry Study. Neurosurgery. 2022 Nov 4. doi: 10.1227/neu.0000000000002203. Epub ahead of print. PMID: 36331212.

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