

# Low BMI and malnutrition, but not obesity, are risk factors for older adults dying from COVID-19

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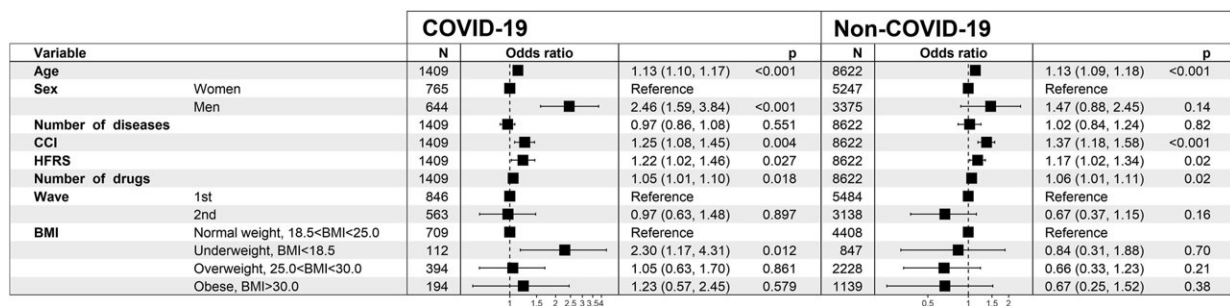


Figure 1. The fully adjusted mortality risk model for the BMI analysis in geriatric patients hospitalized for COVID-19 (n = 1409, 112 died) and other causes (n = 8622, 67 died). Abbreviations: BMI = body mass index, CCI = Charlson comorbidity index, HFRS = Hospital Frailty Risk Score. Credit: DOI: 10.1016/j.clnu.2021.07.025

A recent study published in *Clinical Nutrition* shows that low BMI and malnutrition are risk factors for in-hospital mortality in geriatric COVID-19 patients. The study was performed at Karolinska Institutet in collaboration with Theme Inflammation & Aging at Karolinska University Hospital and geriatric clinics in the Stockholm Region.

These results are important as information on the groups with the highest mortality, i.e. the very old and [frail patients](#), is underrepresented. For

example, obesity is a risk factor in COVID-19 infection in younger adults but we instead found that low BMI and malnutrition increased the risk of in-hospital mortality in geriatric COVID-19 patients who were mostly older than 75 years, says Ph.D. Laura Kananen, a researcher at the Department of medical epidemiology and biostatistics, KI.

## COVID-19 in hospitalized geriatric patients

During the first COVID-19 wave in the spring 2020 in Sweden, researchers at Karolinska Institutet reported that in-hospital mortality was 24% among older hospitalized geriatric patients. The risk of death was almost doubled for patients classified as frail according to the Clinical Frailty Scale (CFS) as compared to non-frail older patients. In these patients, [acute kidney injury](#) and multimorbidity were also strong [risk factors](#) for death.

## BMI and nutritional status as risk factors?

The role of body composition and nutritional status in COVID-19 pathology has not been characterized well in hospitalized [older adults](#) (>65 years). Therefore, in our study, we analyzed the associations of body mass index, and nutritional status assessed using Mini Nutritional Assessment-Short Form (MNA-SF) with in-geriatric [hospital mortality](#) in older patients treated for COVID-19. As a reference, the analyses were performed also in older patients who were hospitalized for other causes than COVID-19 in the same geriatric hospitals during the same time period. Data in the analysis comprised medical records of ~10 000 patients in Stockholm during the first two pandemic waves. Age range of the patients was from 65 to 105 years, and their median age was 83 years. Follow-up of survival was short, i.e., only the hospitalization period.

The major finding of this study was that indicators of undernutrition; i.e., underweight (BMI

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