

(2014-2019) from 40 US states. The physical frailty phenotype (PFP), SPPB, ADL/IADL dependence and 3MS global cognitive impairment were assessed at transplant evaluation. Household-level air pollution was estimated as annual average PM_{2.5} concentrations at each participant's address using SEDAC national air pollution data. We estimated the odds of these gerontologic constructs using adjusted logistic regression by quartiles of PM_{2.5} concentrations accounting for confounders including socioeconomic status. Compared to patients with PM_{2.5} concentrations in the lowest quartile (<9.3µg/m³), those with exposure to the 3rd quartile (10.0-11.1µg/m³) had 1.50-fold (95% CI:1.04-2.17) increased odds of frailty. However, exposure to PM_{2.5} concentrations in the second (9.3-10.0µg/m³) and fourth quartiles (>11.1µg/m³) were not significant. Those with PM_{2.5} in the 3rd (OR=1.60, 95% CI:1.19-2.16) or 4th (OR=1.61, 95% CI:1.20-2.16) quartile had an increased risk of having dependence in ADLs or IADLs. PM_{2.5} was not associated with SPPB or cognitive impairment. Among ESKD patients, fine particulate matter was associated with greater frailty and dependence burden, although these association may not be linear. Further study of the role of inflammation on these associations are needed.

BIDIRECTIONAL RELATIONSHIP BETWEEN SUBJECTIVE AGE AND FRAILITY: FINDINGS FROM THE NHATS

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Frailty is a clinical syndrome that becomes increasingly common as people age. Subjective age refers to how young or old individuals experience themselves to be. It is associated with many risk factors of frailty, such as increased depression, worse cognitive function, and poorer psychological wellbeing. In this study, we examined the relationship between subjective age and frailty using the 2011-2015 waves of the National Health and Aging Trends Study. Participants were community-dwelling older adults without frailty in the initial wave (N=1,165). Subjective age was measured by asking participants, "What age do you feel most of the time?" Based on the Fried five phenotypic criteria: exhaustion, unintentional weight loss, low physical activity, slow gait, and weak grip strength, frailty was categorized into robust=0, pre-frail=1 or 2; frail=3 or more criteria met. Participants were, on average, 74.1±6.5 years old, female (52%), and non-Hispanic White (81%). Eighty-five percent of the participants felt younger, and 3% felt older than their chronological age, but 41% of them were pre-frail/frail. Generalized estimating equations revealed that an "older" subjective age predicted a higher likelihood of pre-frailty and frailty (OR, 95% CI= 1.01, 1.01-1.02). In contrast, frailty predicted an "older" subjective age (OR, 95% CI= 2.97, 1.65-5.35) adjusting for demographics and health conditions. These findings suggest a bidirectional relationship between subjective age and frailty. Older people who feel younger than their chronological age are at reduced risk of becoming pre-frail/frail. Intervention programs to delay frailty progression should include strategies that may help older adults perceive a younger subjective age.

DIFFERENCES IN CAUSE-SPECIFIC MORTALITY BETWEEN FRAIL MEN AND WOMEN IN THE UNITED STATES

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While frailty is associated with risk of numerous adverse health outcomes including mortality, little is known about the most common specific causes of death among frail older adults or how these causes might differ by gender. This information may be important to understanding the frailty syndrome and to informing screening and treatment. We used linked data from the Health and Retirement Study (2004 – 2012) and the National Death Index (NDI). We analyzed data from HRS participants age 65 and older who completed a general health interview and physiological measures (n=10,490). Frailty was operationalized using the phenotype criteria – low weight, low energy expenditure, exhaustion, slow gait, and weakness. Causes of death were determined using International Classification of Diseases (v10) codes from death certificates. We used Cox proportional hazards to compare incidence of cause-specific mortality by frailty status and gender. The attributable risk of mortality due to frailty in the sample was 16.6% among women and 17.3% among men. Overall, frail older adults had greater risk of death from heart disease (hazard ratio (HR): 2.97; 95% CI: 2.18, 4.04), cancer (HR: 2.81; 95% CI: 2.01, 3.93), and dementia 2.86 (95% CI: 1.46, 5.58) but not cerebrovascular disease or accidents. Frail women were more approximately 29% more likely to die from heart disease than frail men. Findings suggest that frailty is a significant risk factor for mortality from several different causes, especially among women. Findings may help inform screening and treatment decisions for older adults at risk for frailty.

INTERSECTION OF SEX AND FRAILITY IN HUMORAL IMMUNE RESPONSES TO INFLUENZA VACCINE IN COMMUNITY-DWELLING OLDER ADULTS

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Older adults bear the highest burden of severe disease and complications associated with seasonal influenza, with annual vaccination serving as the best option for protection. Variability in vaccine efficacy exists, yet the host factors that affect immune responses to inactivated influenza vaccines (IIV) are incompletely understood. We hypothesized that sex and frailty interact to affect vaccine-induced humoral responses among older adults. To test this hypothesis, community-dwelling adults above 75 years of age were recruited yearly, assessed for frailty (as defined by the Cardiovascular Health Study criteria), and vaccinated with the high-dose trivalent IIV. Humoral immune responses were evaluated via hemagglutination inhibition titers. The study began during the 2014-2015 influenza season, with yearly cohorts ranging from 76-163 individuals. A total of 617 vaccinations were delivered from 2014-2019. In preliminary analyses, the outcome of interest was seroconversion, defined