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Title: Social isolation and Frailty in the Health, Aging and Body Composition Study (HABC).

Background: Social isolation is a risk factor for many different diseases in geriatric populations including increased hospitalization rates, heart disease, cancer, and mortality. Frailty is a complex syndrome marked by loss of function, strength and physiological reserve in elderly individuals. We evaluated the potential relationship between frailty and social isolation in African Americans (AA) and Caucasians.

Methods: Cross-sectional study using the HABC study for all individuals enrolled during the first year of the study (1997-1998). The Lubben Social Network Scale (LSNS) was used to measure social isolation and fatigue and the 400meter walk test were used to measure frailty. First, the LSNS was categorized into 4 levels based on the commonly used clinical cutoffs. Second, a 2 level categorical variable based on the LSNS cutoff of less than 16, which is considered the most isolated group that we used for bivariate and multivariate analysis. The 400 meter walk test was analyzed for completion as an outcome and as a categorical variable with four levels also based on clinical cutoffs. Multinomial and standard logistic regression to calculate the odds of fatigue or impaired 400 meter walk test results were stratified by race.

Results: In bivariate analysis, 400 meter walk speed was significantly slower in socially isolated individuals (321 seconds vs. 317 seconds, $p < .001$), these isolated subjects were also more likely to report fatigue (9.80% vs. 6.84 %, $p < .001$). Multivariate analysis included adjustment for age, gender, education, income, marital status, insurance status, presence of depression, and multiple comorbidities. In multivariate analysis of AA using the categorical LSNS as the exposure, the odds ratios and 95% confidence intervals are reported as follows; fatigue (OR 1.04 95% CI .759-1.433, $p > .05$), the ability to complete the 400 meter walk test (OR 1.13, 95% CI .86-1.69, $p > .05$) and the 400 meter walk score (OR 1.12, 95% CI .931-1.34, $p > .05$.) In multivariate analysis of Caucasians using the categorical LSNS as the exposure, the outcomes are as follows fatigue (OR 0.88, 95% CI .58-1.128, $p > .05$), ability to complete the 400 meter walk test (OR 1.06, 95% CI .83-1.35, $p > .05$), and the 400 meter walk test (OR 1.06, 95% CI .924-1.297, $p > .05$.) Using the most isolated group as the exposure, the results of the multivariate analysis for AA are as follows: fatigue (OR 1.71, 95% CI 1.13-2.59, $p < .05$), the ability to complete the 400 meter walk (OR 1.09, 95 % CI .82-1.52, $p > .05$), the 400 meter walk test (OR 1.03, 95% CI .76-1.33, $p < .05$). In multivariate analysis of Caucasians using the most isolated group as the exposure, the outcomes are as follows: fatigue (OR 1.33, 95% CI .78-2.26, $p > .05$), the ability to complete the 400 meter walk (OR 1.16, 95% CI .88-1.5, $p > .05$), the 400 meter walk test (OR 0.96, 95% CI .77-1.21.)

Conclusion: These findings suggest that social isolation may be a risk factor for frailty among well-functioning elderly, especially in African Americans. More longitudinal investigation and awareness of social isolation is needed in the medicine and public health.