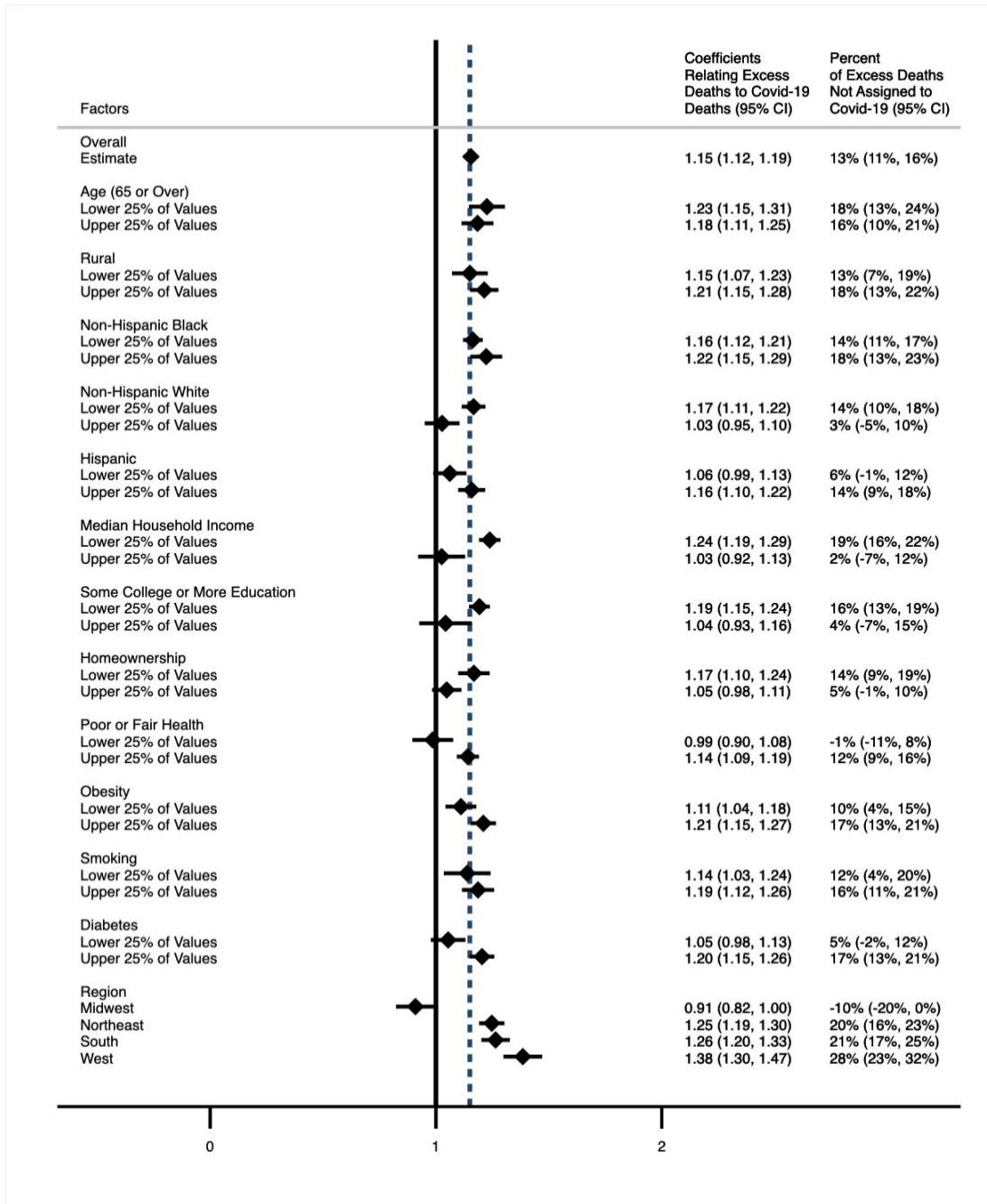


**S3 Fig.** Relationship Between Indirectly Age Standardized All-Cause Mortality and Direct Covid-19 Mortality across Strata of Sociodemographic and Health Factors<sup>a,b,c</sup>



a. n = 2,096 counties

b.  $\beta_2$  coefficients generated from primary model:  $M(i) = \alpha + \beta_1 M^*(i) + \beta_2 C(i)$ , where  $M(i)$  = Death rate from all causes in county  $i$  in 2020,  $M^*(i)$  = Death rate from all causes, county  $i$  in 2013-2018, and  $C(i)$  = Covid-19 death rate in county  $i$  in 2020. The model was weighted by the 2020 population and fully stratified into population weighted quartiles for each sociodemographic or health factor. The coefficients for the upper and lower 25% of values for each factor are presented in this figure.

c. Sample interpretation: in counties with lower household income, for every 1 directly assigned Covid-19 death, there was an increase in 1.24 all-cause deaths, suggesting there were 0.24 deaths not assigned to Covid-19 for every 1 directly assigned Covid-19 death in these counties.