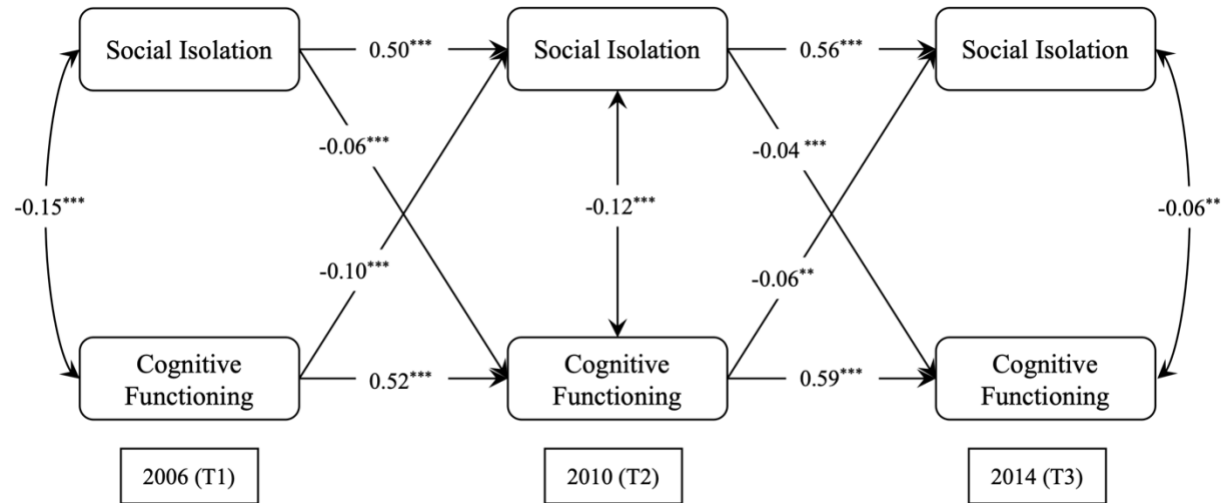**Supplementary Figure S1. Unadjusted cross-lagged panel model for social isolation with cognitive functioning**

Note:

Estimates were weighted to adjust for differential probabilities of selection and nonresponse of Health and Retirement Study participants. Longitudinal attrition was handled through inverse-probability-of-attrition weights.

Single-headed arrows represented regression paths. Double-headed arrows represented correlations.

The solid lines indicate paths statistically significant at $p < 0.05$. Dashed lines are nonsignificant.

Model fit: CFI = 0.919, TLI = 0.904, RMSEA = 0.021 (90% CI, 0.018-0.024), Chi2 (4) = 514.811.

$*p < 0.05$, $**p < 0.01$, $***p < 0.001$

Supplementary Table S1. Unadjusted cross-lagged panel model for association between social isolation and cognitive functioning over three waves

	β T1 → T2	SE	p	β T2 → T3	SE	p
Social isolation → social isolation in the next wave	0.501	0.019	< 0.001	0.556	0.020	< 0.001
Cognitive functioning → social isolation in the next wave	-0.101	0.020	< 0.001	-0.058	0.011	< 0.01
Social isolation → cognitive functioning in the next wave	-0.055	0.014	< 0.001	-0.044	0.016	< 0.01
Cognitive functioning → cognitive functioning in the next wave	0.519	0.012	< 0.001	0.593	0.011	< 0.001

Note:

β = standardized regression coefficients; SE = Standard Error.

Model fit: CFI = 0.919, TLI = 0.904, RMSEA = 0.021 (90% CI, 0.018-0.024), Chi2 (4) = 514.811.

Supplementary Table S2. Cross-lagged panel model for association between social isolation and cognitive functioning over three waves

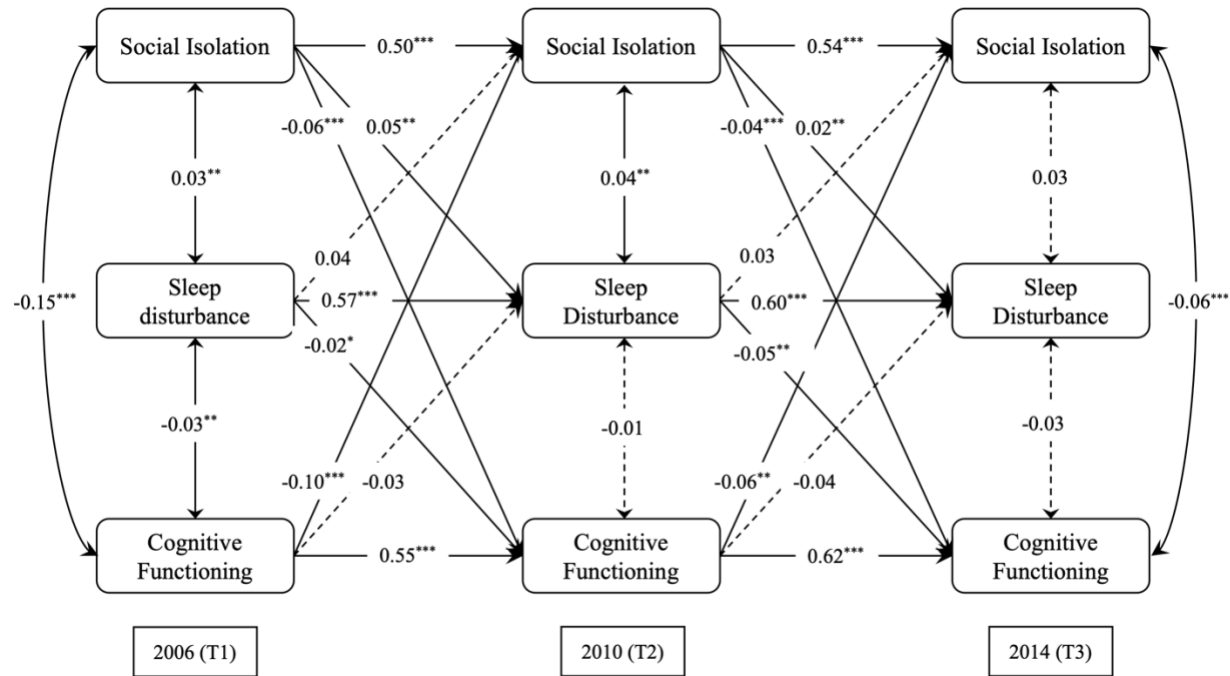|	β T1 → T2	SE	p	β T2 → T3	SE	p
Social isolation → social isolation in the next wave	0.482	0.020	< 0.001	0.551	0.021	< 0.001
Cognitive functioning → social isolation in the next wave	-0.051	0.011	< 0.01	-0.060	0.025	< 0.05
Social isolation → cognitive functioning in the next wave	-0.045	0.014	< 0.001	-0.037	0.013	< 0.05
Cognitive functioning → cognitive functioning in the next wave	0.530	0.150	< 0.001	0.591	0.015	< 0.001

Note:

All path coefficients were standardized, and all models controlled for age, sex, race/ethnicity, education, income, smoking, loneliness, depressive symptoms, and the number of comorbidities.

Estimates were weighted to adjust for differential probabilities of selection and nonresponse of Health and Retirement Study participants. Longitudinal attrition was handled through inverse-probability-of-attrition weights.

Model fit: CFI = 0.934, TLI = 0.905, RMSEA = 0.048 (90% CI, 0.036-0.060), Chi2 (4) = 410.211.

$*p < 0.05$, $**p < 0.01$, $***p < 0.001$

Supplementary Figure S2. Unadjusted cross-lagged panel model for social isolation, sleep disturbance, and cognitive functioning

Note:

Estimates were weighted to adjust for differential probabilities of selection and nonresponse of Health and Retirement Study participants. Longitudinal attrition was handled through inverse-probability-of-attrition weights.

Single-headed arrows represented regression paths. Double-headed arrows represented correlations.

The solid lines indicate paths statistically significant at p < 0.05. Dashed lines are nonsignificant.

Model fit: CFI = 0.920, TLI = 0.884, RMSEA = 0.055 (90% CI, 0.045-0.065), Chi2 (9) = 789.168.

Supplementary Table S3. Unadjusted cross-lagged panel model for association between social isolation, sleep disturbance, and cognitive functioning over three waves

	β T1 → T2	SE	p	β T2 → T3	SE	p
Social isolation → social isolation in the next wave	0.501	0.019	< 0.001	0.541	0.020	< 0.001
Sleep disturbance → social isolation in the next wave	0.036	0.021	0.074	0.028	0.022	0.213
Cognitive functioning → social isolation in the next wave	-0.100	0.020	< 0.001	-0.056	0.021	< 0.01
Social isolation → cognitive functioning in the next wave	-0.055	0.014	< 0.001	-0.043	0.016	< 0.001
Sleep disturbance → cognitive functioning in the next wave	-0.022	0.010	< 0.05	-0.046	0.015	< 0.01
Cognitive functioning → cognitive functioning in the next wave	0.553	0.009	< 0.001	0.616	0.012	< 0.001
Social isolation → sleep disturbance in the next wave	0.054	0.016	< 0.01	0.021	0.007	< 0.01
Sleep disturbance → sleep disturbance in the next wave	0.574	0.014	< 0.001	0.601	0.015	< 0.001
Cognitive functioning → sleep disturbance in the next wave	-0.030	0.016	0.062	-0.039	0.021	0.101

Note:

β = standardized regression coefficients; SE = Standard Error.

Model fit: CFI = 0.920, TLI = 0.884, RMSEA = 0.055 (90% CI, 0.045-0.065), Chi2 (9) = 789.168.

Supplementary Table S4. Cross-lagged panel model for association between social isolation, sleep disturbance, and cognitive functioning over three waves

	β T1 → T2	SE	p	β T2 → T3	SE	p
Social isolation → social isolation in the next wave	0.500	0.019	< 0.001	0.563	0.020	< 0.001
Sleep disturbance → social isolation in the next wave	0.036	0.020	0.089	0.026	0.023	0.363
Cognitive functioning → social isolation in the next wave	-0.099	0.019	< 0.001	-0.056	0.023	< 0.05
Social isolation → cognitive functioning in the next wave	-0.055	0.015	< 0.001	-0.042	0.015	< 0.001
Sleep disturbance → cognitive functioning in the next wave	-0.020	0.009	< 0.05	-0.052	0.017	< 0.01
Cognitive functioning → cognitive functioning in the next wave	0.521	0.012	< 0.001	0.627	0.014	< 0.001
Social isolation → sleep disturbance in the next wave	0.054	0.016	< 0.01	0.019	0.008	< 0.05
Sleep disturbance → sleep disturbance in the next wave	0.570	0.013	< 0.001	0.601	0.016	< 0.001
Cognitive functioning → sleep disturbance in the next wave	-0.029	0.018	0.125	-0.049	0.018	< 0.01

Note:

All path coefficients were standardized, and all models controlled for age, sex, race/ethnicity, education, income, smoking, loneliness, depressive symptoms, and the number of comorbidities.

Estimates were weighted to adjust for differential probabilities of selection and nonresponse of Health and Retirement Study participants. Longitudinal attrition was handled through inverse-probability-of-attrition weights.

Model fit: CFI = 0.903, TLI = 0.827, RMSEA = 0.057 (90% CI, 0.044-0.070), Chi2 (69) = 1,726.885.