Supplement

Supplementary table 1. Characteristics distribution stratified by self-reported cognitive status, M ± SD, N (%)

Supplementary table 2. Results of logistic regression analysis of associations among depressive symptoms, homebound and cognitive impairment excluding proxy respondents (N=6,746-6,978)

Supplementary table 3. Mediation of homebound status in the association between depressive symptoms and cognitive impairment excluding proxy respondents (N=6,746-6,978)

Supplementary table 1. Characteristics distribution stratified by self-reported cognitive status

Characteristics	Total (N=6,746-6,978)	Cognitive impairment (n=1,416-1,530)	Nocognitive impairment (n=5,330-5,448)	*P* values
Age, M ± SD	77.2 ± 7.7	81.2 ± 7.7	76.1 ± 7.3	<.001
Sex, n (%)				.800
Female	4051 (58.1)	858 (56.1)	3193 (58.6)	
Male	2927 (41.9)	672 (43.9)	2255 (41.4)	
Race/ethnicity, n (%)				<.001
White, non-Hispanic	4847 (69.5)	878 (57.4)	3969 (72.9)	
Black, non-Hispanic	1483 (21.2)	421 (27.5)	1062 (19.5)	
Hispanic	253 (3.6)	84 (5.5)	169 (3.1)	
Other	395 (5.7)	147 (9.6)	248 (4.5)	
Education, n (%)				<.001
Less than high school	1760 (25.5)	686 (45.6)	1074 (19.9)	
High school	1905 (27.6)	370 (24.6)	1535 (28.4)	
Some college or vocational school	1734 (25.1)	255 (17.0)	1479 (27.4)	
College or higher	1509 (21.8)	191 (12.7)	1318 (24.3)	
Living arrangement, n (%)				<.001
Alone	2315 (33.3)	575 (37.8)	1740 (32.1)	
With spouse/partner only	2913 (41.9)	447 (29.3)	2466 (45.5)	
With others only	1104 (15.9)	359 (23.6)	745 (13.7)	
With spouse/partner and with others	615 (8.9)	142 (9.3)	473 (8.7)	
Smoking status, n (%)				<.001
No	3382 (48.5)	789 (51.7)	2593 (47.6)	
Yes	3591 (51.5)	738 (48.3)	2853 (52.4)	
Vigorous activity, n (%)				<.001
No	4470 (64,1)	1235 (80.8)	3235 (59.4)	
Yes	2507 (35.9)	294 (19.2)	2213 (40.6)	
BMI, n (%)				<.001
Normal (<30 kg/m^2)	4881 (72.3)	1115 (78.7)	3766 (70.7)	
Obesity (≥30 kg/m^2)	1865 (27.7)	301 (21.3)	1564 (29.3)	
Visual impairment, n (%)				<.001
No	6347 (91.2)	1281 (83.9)	5066 (93.2)	
Yes	615 (8.8)	246 (16.1)	369 (6.8)	
Auditory impairment, n (%)				<.001
No	5381 (77.1)	1079 (70.5)	4302 (79.0)	
Yes	1597 (22.9)	451 (29.5)	1146 (21.0)	
Hypertension, n (%)				.905
No	2306 (33.1)	503 (33.0)	1803 (33.1)	
Yes	4663 (66.9)	1023 (67.0)	3640 (66.9)	

Diabetes, n (%)				<.001
No	5218 (74.8)	1074 (70.3)	4144 (76.1)	
Yes	1757 (25.2)	453 (29.7)	1304 (23.9)	
Stroke, n (%)				<.001
No	6246 (89.6)	1289 (84.4)	4957 (91.1)	
Yes	726 (10.4)	239 (15.6)	487 (8.9)	
Number of ADL impairments, M ± SD	1.2 ± 0.7	1.5 ± 1.0	1.2 ± 0.6	<.001
Hospitalization, n (%)				<.001
No	5428 (77.9)	1071 (71.2)	4357 (80.0)	
Yes	1542 (22.1)	455 (29.8)	1087 (20.0)	
Depressive symptoms, n (%)				<.001
No	5974 (85.6)	1177 (76.9)	4797 (88.1)	
Yes	1004 (14.4)	353 (23.1)	651 (11.9)	
Homebound, n (%)				<.001
No	5509 (79.0)	937 (61.2)	4572 (83.9)	
Yes	1469 (21.0)	593 (38.8)	876 (16.1)	

Abbreviations: M, mean; SD, standard deviations; BMI, body mass index; ADL, activity of daily living.

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Supplementary table 2. Results of logistic regression analysis of associations among depressive symptoms, homebound and cognitive impairment excluding proxy respondents (N=6,746-6,978)

Independent variable(s)	Effect size for association, OR (95% CI)[b]			
	Dependent Variable			
	Model 1: Cognitive Impairment	Model 2: Homebound Status	Model 3: Cognitive Impairment	Model 4: Cognitive Impairment
Depressive symptoms	1.52 (1.27-1.81) ***	1.92 (1.59-2.33) ***	NA	1.47 (1.23-1.75) ***
Homebound status	NA	NA	1.51 (1.27-1.80) ***	1.46 (1.23-1.75) ***

Abbreviations: OR, odds ratio; NA, not applicable.

a * P <.05, ** P <.01, ***P<.001

b   All models adjusted for demographics (age, sex, education, race/ethnicity, living arrangement) and health-related characteristics (smoke, body mass index, vigorous activity, visual impairment, auditory impairment, hypertension, diabetes, stroke, number of activities of daily living impairments, hospitalization).

Supplementary table 3. Mediation of homebound status in the association between depressive symptoms and cognitive impairment excluding proxy respondents (N=6,746-6,978)

	Model 1[b] OR (95% CI)	Model 2[c] OR (95% CI)	Model 3[d] OR (95% CI)
Natural direct effect	1.71 (1.46-1.98) ***	1.63 (1.39-1.93) ***	1.47 (1.24-1.78) ***
Natural indirect effect	1.36 (1.29-1.43) ***	1.19 (1.14-1.24) ***	1.05 (1.02-1.08) ***
Marginal total effect	2.33 (2.00-2.71) ***	1.95 (1.66-2.30) ***	1.54 (1.30-1.86) ***
Proportion mediated[a]	57.3%	36.5%	12.7%

[a] Proportion meditated by homebound status were calculated as the log of the indirect effect divided by the log of the total effect.

[b] Model 1: independent variables of interest

[c] Model 2: Model 1+ demographic covariates (age, sex, education, race/ethnicity, living arrangement)

[d] Model 3: Model 2 + health-related covariates (smoke, body mass index, vigorous activity, visual impairment, auditory impairment, hypertension, diabetes, stroke, number of activities of daily life impairment, hospitalization)