

RECONCEPTUALIZING HEALTH:

Constellations of Indicators in a
Population-Based Sample of
Older Adults (Ages 57 to 85)



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THE NATIONAL
SOCIAL LIFE
HEALTH &
AGING PROJECT

NSHAP Study Design Overview



- Population-based, community-resident sample with minority oversampling
 - Wave 1 (2005): 3,005 older adults age 57-85
 - Wave 2 (2010): 3,377 adults, including 2,322 Wave 1 respondents age 62-90 and a subsample of their co-resident romantic partners, 955 adults ages 36-99
- Multi-mode data collection
 - 120-minute in-home interview, including the in-person questionnaire and biomeasure data collection
 - Leave-behind pencil-and-paper questionnaire
 - 7-day actigraphy sub-study (Wave 2 only)

NSHAP Specific Aims



1. Describe the health of older adults
2. Identify the biological pathways through which older adult interpersonal and intimate connections affect health
3. Examine the importance of social status characteristics such as age, gender, race/ethnicity, SES, marital status, culture, and psychosocial factors (e.g., social connections, social support, and personal coping resources) for older adult health

To address these aims, we:

- a. Inductively develop a model of health at older ages using latent class analysis to identify distinct groups of individuals based on a range of health indicators, thus reconceptualizing the standard biophysical framework of adult health

5 Domains (I-V) and 15 Dimensions (A-O) of Health, Composed of 54 Health Measures



- **I. Organ System Diseases**
 - A. Cardiovascular Function
 - B. Endocrine Metabolism
 - C. Cancer
 - D. Lung Function
 - E. Filtration Function
- **II. Immune Function**
 - F. Inflammation
 - G. Infection
- **III. Health Behaviors**
 - H. Body Composition
 - I. Sleep
 - J. Risky Behavior
- **IV. Psychological Health**
 - K. Mental Health
 - L. Cognition
- **V. Sensorimotor Function**
 - M. Senses
 - N. Incontinence
 - O. Frailty

Types of Measures in the Model: Self-Reported



- Self-reported physician-diagnosed diseases and conditions
 - E.g., “Has a doctor ever told you that you have asthma?”
- Self-reported health behaviors
 - E.g., “How often do you participate in physical activity such as walking, dancing, gardening, physical exercise or sports?”
- Validated geriatric scales
 - E.g., Katz Activities of Daily Living Scale (ADL): 5 items, e.g., “In the last 3 months, how much difficulty have you had getting in and out of bed?”
 - E.g., Short Portable Mental Status Questionnaire (SPMSQ)
- Psychological self-assessments and validated scales
 - E.g., “If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole...”
 - E.g., Center for Epidemiologic Studies Depression Scale (CES-D), 9 items

Types of Measures in the Model: Biomeasures



- *Biomeasures* are biological, anthropometric, functional, and sensory measurements collected from survey respondents by non-medically trained field staff, allowing the examination of biological indicators of processes, events, or conditions
- Biomeasures included in the analysis:
 - Anthropometrics (BMI, Waist Circumference)
 - Cardiovascular Function (Blood Pressure, Rapid Pulse)
 - Physical Performance (Timed Get-Up-and-Go)
 - Sensory Function (Smell, Vision, Taste, Touch)
 - Blood Spots (C-Reactive Protein, Epstein-Barr Virus, HbA1c)



Measures of Organ System Diseases



- A. Cardiovascular Function:
 - Hypertension; Systolic BP; Diastolic BP; Heart Attack; Heart Failure; Cerebrovascular Disease; Rapid Pulse
- B. Endocrine Metabolism:
 - Diabetes; Glycosylated Hemoglobin (HbA1c); Thyroid Disease
- C. Lung Function:
 - Chronic Obstructive Pulmonary Disease (COPD); Asthma
- D. Filtration Function:
 - Chronic Kidney Disease; Cirrhosis or Severe Liver Damage
- E. Cancer
 - Cancer (Skin, Reproductive, Non-Reproductive)

Measures of Immune Function



F. Inflammation:

- Arthritis; C-Reactive Protein (CRP)

G. Infection:

- Peptic Ulcer Disease; Epstein-Barr Virus (EBV)

Measures of Health Behaviors



H. Body Composition:

- BMI; Waist Circumference

I. Risky Behavior

- Cotinine; Drinking Problem; Drinks per Sitting; STD; Inactivity

J. Sleep:

- Wakes up Tired (Sleep Efficiency); Hours of Sleep

Measures of Psychological Health



K. Mental Health:

- Depressive Symptoms (CES-D); Anxiety (HADS); Perceived Stress (PSS); Loneliness (UCLA Scale); Happiness; Self-Esteem

L. Cognition:

- Cognition Decreased (SPMSQ)

Measures of Sensorimotor Function



M. Senses:

- Vision, Hearing, Smell, Taste, and Touch Impairment

N. Incontinence:

- Urinary and Fecal Incontinence; Voiding Dysfunction

O. Frailty:

- Anemia; Bone Fractures; Impaired Mobility; Pain (While Walking); Exercise Restricted; Timed Get-Up-And-Go; Basic Disabilities with 5 ADL's

Latent Class Analysis



- Latent class analysis is employed to identify distinct latent classes of health, from which the clustering of health indicators emerges—i.e., the clustering of multiple symptoms, conditions, diseases
- 54 indicators of health within 15 dimensions from the NSHAP Wave 1 in-person and leave-behind questionnaires, in addition to the biomeasure data collection
- 6 distinct, unordered latent classes as determined by the Bayesian information criterion (BIC) value. E.g.,

Number of Classes	BIC
5	197513
6	197486
7	197506

Stepwise Approach to the Latent Class Analysis



Health domains were added sequentially using a stepwise approach in order to determine if class composition changes with the addition of the measures in each health domain:

- Step 1. Biophysical Model:** Organ System Diseases
- Step 2.** Organ System Diseases + Immune Function
- Step 3.** Organ System Diseases + Immune Function + Health Behaviors
- Step 4.** Organ System Diseases + Immune Function + Health Behaviors + Psychological Health
- Step 5. Final (Reconceptualized) Model:** Organ System Diseases + Immune Function + Health Behaviors + Psychological Health + Sensorimotor Function

Classifying Health with the Latent Class Analysis



1. We then categorized the value for each health measure within each of the six classes compared to the sample mean:
 - Better than average (Green)
 - Same as average (Yellow)
 - Worse than average (Red)
2. With all 54 health measures from all 5 domains of health, latent class analysis identifies 6 classes and highlights distinct configurations of physical and mental comorbidities

Latent Class Analysis Results



Health Measure			Conditional Probability of Class (%):					
	Total %	Total N	A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
I. Organ System Diseases								
A. Cardiovascular Function								
1. Hypertension Diagnosed								
No	0.46	1386	0.64	0.51	0.51	0.48	0.28	0.27
Yes	0.54	1619	0.36	0.49	0.49	0.52	0.72	0.73
2. Systolic Blood Pressure (SBP)								
Normal, <120 mm/Hg	0.21	625	0.27	0.21	0.26	0.15	0.16	0.25
Prehypertensive, 120-139 mm/Hg	0.39	1133	0.40	0.39	0.36	0.40	0.39	0.36
Stage 1 Hypertensive, 140-159 mm/Hg	0.28	824	0.24	0.28	0.26	0.33	0.29	0.27
Stage 2 Hypertensive, 160+ mm/Hg	0.12	356	0.09	0.12	0.13	0.12	0.16	0.11
3. Diastolic Blood Pressure (DBP)								
Normal, <80 mm/Hg	0.48	1400	0.58	0.46	0.51	0.38	0.41	0.55
Prehypertensive, 80-89 mm/Hg	0.29	860	0.31	0.30	0.28	0.32	0.30	0.22
Stage 1 Hypertensive, 90-99 mm/Hg	0.18	517	0.09	0.16	0.15	0.25	0.23	0.17
Stage 2 Hypertensive, 100+ mm/Hg	0.06	160	0.02	0.08	0.07	0.06	0.06	0.06
4. Heart Attack Diagnosed								
No	0.88	2645	0.92	0.89	0.89	0.95	0.84	0.75
Yes	0.12	349	0.08	0.11	0.11	0.05	0.16	0.26
5. Heart Failure								
No	0.92	2742	0.97	0.94	0.91	0.98	0.89	0.74
Yes	0.08	247	0.03	0.06	0.09	0.02	0.11	0.26
6. Cerebrovascular Disease Diagnosed								
No	0.92	2761	0.97	0.94	0.93	0.97	0.90	0.75
Yes	0.08	244	0.03	0.06	0.07	0.03	0.11	0.25

	Total %	Total N	A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
7. Rapid Pulse								
Lower Mortality Risk, 60-69 beats/min	0.31	913	0.35	0.31	0.36	0.34	0.24	0.24
Bradycardia, <60 beats/min	0.18	520	0.22	0.18	0.17	0.16	0.16	0.17
Typical Mortality Risk, 70-79 beats/min	0.28	828	0.29	0.27	0.24	0.30	0.27	0.32
Higher Mortality Risk, 80+ beats/min	0.23	674	0.14	0.23	0.23	0.21	0.34	0.28
B. Endocrine Metabolism								
8. Diabetes Diagnosed								
No	0.80	2411	0.91	0.86	0.83	0.88	0.58	0.68
Yes	0.20	594	0.09	0.14	0.17	0.12	0.42	0.32
9. Glycosylated Hemoglobin (HbA1c)								
Normal, <6.0%	0.62	1100	0.81	0.66	0.67	0.64	0.35	0.56
Prediabetic, 6.0-6.4%	0.19	333	0.12	0.22	0.14	0.23	0.22	0.18
Diabetic, 6.5+%	0.19	338	0.07	0.12	0.19	0.13	0.43	0.26
10. Thyroid Disease Diagnosed								
No	0.85	2542	0.86	0.83	0.87	0.89	0.85	0.75
Yes	0.15	463	0.15	0.17	0.14	0.11	0.15	0.25
C. Lung Function								
11. Chronic-Obstructive Pulmonary Disease (COPD) Diagnosed								
No	0.89	2670	0.93	0.89	0.90	0.96	0.86	0.73
Yes	0.11	335	0.07	0.11	0.10	0.04	0.14	0.27
12. Asthma Diagnosed								
No	0.90	2700	0.94	0.91	0.87	0.94	0.91	0.78
Yes	0.10	305	0.06	0.09	0.13	0.06	0.09	0.22

	Total % Total N		A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
D. Filtration Function								
13. Chronic Kidney Disease Diagnosed								
No	0.96	2893	0.99	0.97	0.98	1.00	0.95	0.86
Yes	0.04	112	0.01	0.03	0.02	0.00	0.05	0.15
14. Cirrhosis or Severe Liver Damage Diagnosed								
No	0.99	2973	1.00	0.99	0.98	1.00	0.99	0.97
Yes	0.01	32	0.00	0.01	0.02	0.00	0.01	0.03
E. Cancer								
15. Cancer Diagnosed, Skin								
No	0.84	2531	0.80	0.82	0.85	0.89	0.87	0.81
Yes	0.16	474	0.20	0.18	0.15	0.11	0.13	0.19
16. Cancer Diagnosed, Reproductive								
No	0.92	2777	0.92	0.91	0.92	0.93	0.94	0.93
Yes	0.08	228	0.08	0.09	0.08	0.07	0.06	0.07
17. Cancer Diagnosed, Non-Reproductive								
No	0.95	2843	0.96	0.94	0.96	0.95	0.94	0.92
Yes	0.05	162	0.04	0.06	0.04	0.05	0.06	0.08
II. Immune Function								
F. Inflammation								
18. Arthritis Diagnosed								
No	0.48	1454	0.60	0.45	0.57	0.63	0.31	0.23
Yes	0.52	1551	0.40	0.55	0.43	0.37	0.69	0.77
19. C-Reactive Protein								
Lower Risk of Chronic Inflammation, <1.69	0.57	1050	0.83	0.57	0.58	0.56	0.34	0.47
Average Risk of Chronic Inflammation, 1.69-2.49	0.12	228	0.07	0.11	0.13	0.17	0.16	0.11
High Risk of Chronic Inflammation, 2.50+	0.30	556	0.11	0.32	0.29	0.27	0.51	0.42
G. Infection								
20. Peptic Ulcer Diagnosed								
No	0.87	2602	0.88	0.88	0.89	0.93	0.83	0.74
Yes	0.13	403	0.12	0.12	0.11	0.07	0.17	0.27
21. Epstein-Barr Virus Antibody								
Lower Mortality Risk, 20-155	0.51	986	0.56	0.51	0.58	0.49	0.43	0.50
Higher Mortality Risk, 156+	0.49	956	0.45	0.49	0.42	0.52	0.57	0.50

	Total %	Total N	A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
III. Health Behaviors								
H. Body Composition								
22. Body Mass Index								
Normal, 18.5-24.9 kg/m ²	0.25	693	0.61	0.27	0.31	0.01	0.04	0.23
Underweight, <18.5 kg/m ²	0.01	29	0.01	0.01	0.02	0.00	0.00	0.02
Overweight, 25-29.9 kg/m ²	0.36	1013	0.37	0.38	0.38	0.45	0.27	0.27
Obese, 30-34.9 kg/m ²	0.24	660	0.02	0.21	0.22	0.40	0.35	0.22
Morbidly Obese, 35+ kg/m ²	0.15	412	0.00	0.13	0.07	0.14	0.34	0.26
23. Waist Circumference								
Lower Mortality Risk, M <37 in, F <31.5 in	0.23	654	0.62	0.27	0.25	0.00	0.00	0.17
Typical Mortality Risk, M 37-40.2 in, F 31.5-34.6 in	0.31	888	0.38	0.27	0.38	0.39	0.18	0.18
Higher Mortality Risk, M >40.2 in, F >34.6 in	0.47	1365	0.00	0.47	0.37	0.61	0.82	0.65
I. Risky Behavior								
24. Cotinine								
Non-Smoker, <13 ng/ml	0.80	1808	0.80	0.83	0.79	0.84	0.76	0.71
Light Smoker, 13-299 ng/ml	0.10	230	0.09	0.07	0.09	0.08	0.16	0.15
Heavy Smoker, 300+ ng/ml	0.10	236	0.11	0.10	0.13	0.08	0.07	0.15
25. Drinking Problem								
No	0.75	2246	0.72	0.76	0.67	0.72	0.80	0.83
Yes	0.25	759	0.28	0.24	0.33	0.28	0.20	0.17
26. Drinks per Sitting								
Non-Drinker	0.42	1249	0.33	0.35	0.41	0.29	0.56	0.66
Social Drinker, 1-2 (males), 1 (females)	0.40	1205	0.49	0.43	0.33	0.50	0.32	0.24
Heavy Drinker, >2 (males), >1 (females)	0.18	551	0.18	0.22	0.26	0.21	0.12	0.10

	Total % Total N		A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
27. STD Diagnosed								
No	0.91	2745	0.91	0.92	0.88	0.93	0.91	0.92
Yes	0.09	260	0.09	0.08	0.12	0.07	0.09	0.08
28. Inactivity								
Active (More than 3 times/month)	0.79	2357	0.92	0.86	0.80	0.91	0.68	0.41
Inactive (3 times/month or less)	0.21	643	0.08	0.14	0.20	0.10	0.33	0.59
J. Sleep								
29. Wakes Up Tired								
Never/Rarely	0.61	1828	0.80	0.65	0.40	0.78	0.51	0.32
Sometimes	0.26	791	0.17	0.27	0.35	0.18	0.38	0.32
Most of the Time	0.13	383	0.04	0.08	0.26	0.05	0.11	0.35
30. Hours of Sleep								
Healthy, 7-8 hours	0.57	1705	0.70	0.61	0.45	0.65	0.55	0.34
Long, 9+ hours	0.07	216	0.09	0.07	0.05	0.04	0.08	0.12
Short, 1-6 hours	0.36	1066	0.21	0.33	0.50	0.31	0.37	0.54
IV. Psychological Health								
K. Mental Health								
31. Depressive Symptoms (CESD-10/3)								
No	0.75	2211	0.92	0.85	0.30	0.98	0.82	0.31
Yes	0.25	755	0.08	0.15	0.70	0.02	0.19	0.70
32. Anxiety (HADS-A/7)								
No	0.87	2421	0.97	0.93	0.59	0.98	0.94	0.62
Yes	0.13	366	0.03	0.07	0.41	0.02	0.06	0.38

	Total %	Total N	A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
33. Perceived Stress (PSS)								
Zero	0.48	1339	0.63	0.54	0.09	0.72	0.49	0.14
One-Three	0.32	887	0.29	0.33	0.36	0.26	0.41	0.31
Four-Five	0.12	321	0.06	0.10	0.31	0.02	0.07	0.26
Six-Twelve	0.08	233	0.02	0.03	0.24	0.01	0.03	0.29
34. Loneliness (UCLA Scale)								
Zero	0.56	1384	0.70	0.59	0.18	0.74	0.59	0.34
One-Two	0.26	650	0.23	0.25	0.38	0.19	0.32	0.29
Three-Six	0.17	430	0.07	0.17	0.44	0.07	0.09	0.38
35. Happiness								
(Extremely or very) Happy	0.57	1712	0.73	0.62	0.21	0.76	0.61	0.26
Pretty happy	0.34	1017	0.25	0.33	0.55	0.24	0.36	0.43
Unhappy (Sometimes or usually)	0.09	268	0.02	0.05	0.24	0.00	0.03	0.31
36. Self esteem								
High self esteem	0.45	1250	0.51	0.45	0.22	0.56	0.52	0.27
Somewhat high or neutral	0.43	1197	0.39	0.45	0.52	0.38	0.38	0.50
Low self esteem	0.13	362	0.10	0.10	0.26	0.06	0.10	0.23
L. Cognition								
37. Cognition (Number Incorrect)								
None	0.47	1407	0.52	0.55	0.41	0.55	0.42	0.27
One	0.34	1013	0.33	0.30	0.38	0.32	0.38	0.34
Two	0.13	388	0.11	0.11	0.15	0.11	0.12	0.22
Three+	0.07	197	0.04	0.04	0.06	0.03	0.07	0.18

	Total %	Total N	A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
V. Sensorimotor Function								
M. Sensory								
38. Vision (Smallest Line Read at 3 Meters)								
Good (20/32 or better)	0.63	895	0.69	0.62	0.61	0.75	0.57	0.38
Decreased (20/40 or 20/50)	0.27	388	0.25	0.30	0.28	0.20	0.27	0.41
Poor (20/63 or worse)	0.10	146	0.07	0.09	0.11	0.05	0.16	0.21
39. Night vision								
No difficulty	0.69	1872	0.75	0.71	0.66	0.87	0.61	0.29
Some difficulty	0.22	591	0.20	0.24	0.26	0.12	0.27	0.29
Much difficulty	0.03	67	0.02	0.01	0.04	0.00	0.03	0.08
Unable to do	0.07	193	0.03	0.04	0.04	0.01	0.09	0.34
40. Interviewer-Rated Hearing								
Excellent	0.60	1798	0.61	0.67	0.58	0.73	0.55	0.36
Very good	0.22	657	0.20	0.20	0.24	0.18	0.21	0.31
Good	0.13	390	0.14	0.09	0.11	0.07	0.19	0.22
Fair	0.05	135	0.05	0.03	0.05	0.02	0.04	0.10
Poor	0.01	24	0.00	0.01	0.01	0.01	0.00	0.02
41. Odor Identification (# Errors)								
Normal olfaction (0)	0.51	1429	0.48	0.59	0.53	0.59	0.48	0.33
Mild hyposmia (1)	0.30	845	0.37	0.27	0.23	0.27	0.32	0.33
Severe hyposmia (2)	0.13	364	0.10	0.09	0.14	0.11	0.14	0.24
Functional anosmia (3-5)	0.06	177	0.06	0.06	0.10	0.03	0.06	0.11
42. Taste Identification (# Errors)								
Normgeusia (0)	0.29	716	0.30	0.31	0.35	0.28	0.26	0.26
Mild hypogeusia (1)	0.27	661	0.28	0.31	0.30	0.22	0.26	0.25
Severe hypogeusia (2)	0.29	705	0.29	0.23	0.20	0.35	0.28	0.34
Functional ageusia (3-4)	0.15	379	0.13	0.14	0.15	0.15	0.20	0.15
43. Sense of Touch Threshold								
4mm	0.31	449	0.36	0.29	0.34	0.40	0.19	0.19
8mm	0.38	554	0.34	0.41	0.37	0.38	0.40	0.39
12mm	0.05	79	0.06	0.01	0.08	0.04	0.08	0.05
Nondiscriminating	0.26	384	0.24	0.30	0.22	0.18	0.33	0.37

	Total % Total N		A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
N. Incontinence								
44. Urinary Incontinence								
No	0.59	1680	0.70	0.57	0.55	0.78	0.43	0.35
Yes	0.41	1176	0.30	0.43	0.45	0.22	0.57	0.65
45. Voiding Dysfunction								
No	0.76	2138	0.78	0.79	0.69	0.88	0.72	0.57
Yes	0.25	693	0.22	0.21	0.31	0.12	0.28	0.43
46. Fecal Incontinence								
No	0.91	2580	0.96	0.91	0.88	0.98	0.89	0.74
Yes	0.09	263	0.04	0.09	0.12	0.02	0.11	0.27
O. Frailty								
47. Anemia								
No	0.86	1612	0.89	0.86	0.88	0.93	0.86	0.70
Yes	0.14	260	0.11	0.14	0.12	0.07	0.14	0.30
48. Bone fracture Since Age 45								
No	0.79	1953	1.00	0.00	1.00	1.00	1.00	0.62
Yes, singular fracture	0.20	490	0.00	0.93	0.00	0.00	0.00	0.35
Yes, multiple fracture	0.02	38	0.00	0.07	0.00	0.00	0.00	0.04
49. Type of Fracture:								
N/A (no fracture)	0.79	1953	1.00	0.00	1.00	1.00	1.00	0.62
Non-osteoporotic	0.15	369	0.00	0.72	0.00	0.00	0.00	0.24
Osteoporotic	0.06	160	0.00	0.28	0.00	0.00	0.00	0.14

	Total % Total N		A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
50. Impaired Mobility								
No	0.75	2267	0.94	0.85	0.92	0.98	0.52	0.12
Difficulty walking a block	0.14	430	0.05	0.13	0.08	0.02	0.33	0.34
Difficulty walking a block and across a room	0.10	308	0.02	0.02	0.00	0.00	0.15	0.54
51. Pain While Walking								
No	0.62	1557	0.77	0.65	0.59	0.80	0.45	0.19
Yes	0.39	975	0.23	0.35	0.41	0.20	0.55	0.81
52. Exercise Restricted								
No	0.95	2412	0.98	0.96	0.95	0.98	0.96	0.83
Yes	0.05	128	0.02	0.04	0.06	0.02	0.04	0.17
53. Timed Get-Up-And-Go								
0-10 seconds	0.42	571	0.48	0.46	0.33	0.65	0.21	0.13
11-15 seconds	0.41	559	0.43	0.44	0.48	0.32	0.45	0.35
16+ seconds	0.17	237	0.09	0.10	0.19	0.02	0.34	0.52
54. Basic Disabilities with ADLs								
No	0.77	2302	0.94	0.85	0.87	0.97	0.55	0.23
Yes, one	0.11	315	0.04	0.09	0.11	0.03	0.24	0.17
Yes, two or more	0.13	386	0.02	0.06	0.02	0.00	0.21	0.59

Descriptive Characteristics of the Final Model



- Descriptive statistics of the resulting latent classes allow us to identify possible trends in the population, for example:
- Social status factors (e.g., sociodemographic characteristics)
 - Age
 - Gender
 - Race/Ethnicity
 - Education
- Partnership
 - Marriage
 - Widowhood
 - Relationship Satisfaction

Descriptive Characteristics



Descriptive Characteristics	Total %	Total N	A (1)	B (2)	C (3)	D (4)	E (5)	F (6)
Weighted Proportion		3005	21%	15%	13%	22%	16%	13%
Average Age	68.0	3005	68.3	68.7	67.3	65.6	68.6	71.0
Percent Female	52%	1563	43%	64%	53%	40%	55%	65%
Percent White	80%	2396	85%	87%	80%	82%	73%	73%
Percent College	51%	1532	59%	53%	45%	61%	43%	33%
Percent Partnered	73%	2194	84%	72%	67%	82%	69%	51%
Percent Married	66%	1983	76%	65%	59%	76%	63%	47%
Percent Widowed	17%	511	11%	17%	20%	10%	20%	31%

Summary



- A large share of the older population is quite healthy
- Behaviors and mental health, usually ignored, are key
- Risk factors, early signs of disease appear for some
- Evidence of health differences due to social structure and networks
- Possible pathways of health at older ages emerge

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