

Themes and Issues

Why Study Aging?

What is Aging?

Individual Variation Increases with Age

Individual Variation Does Not Always
Increase with Age

Within-Person Variation Also Occurs

Normal Aging vs. Disease

Disease in Older US Population

Why Study Aging?

Why Study Aging?

Aging population – increased need for
expertise

Natural part of life course

Nexus of psychology, health, society, policy

Making a difference

- Medical innovation

- Care policy improvements

- Improve quality of life

You are aging

US Population is Aging

Number (%) 65 and over

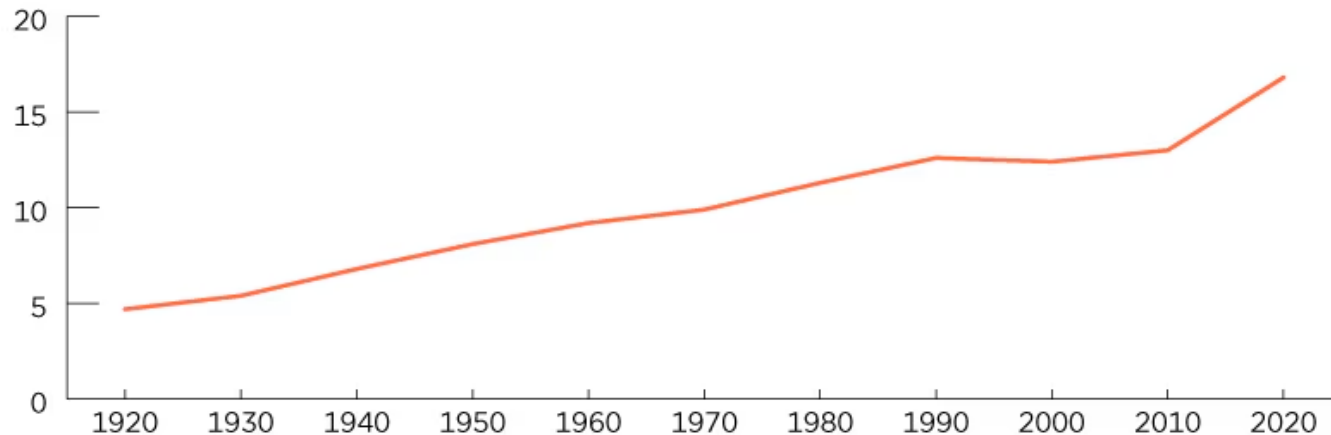
1920: 50.9 million (4.7%)

2022: 82 million (16.8%)

2050: 84 million (23%)

US Population is Aging

Percentage of
total population

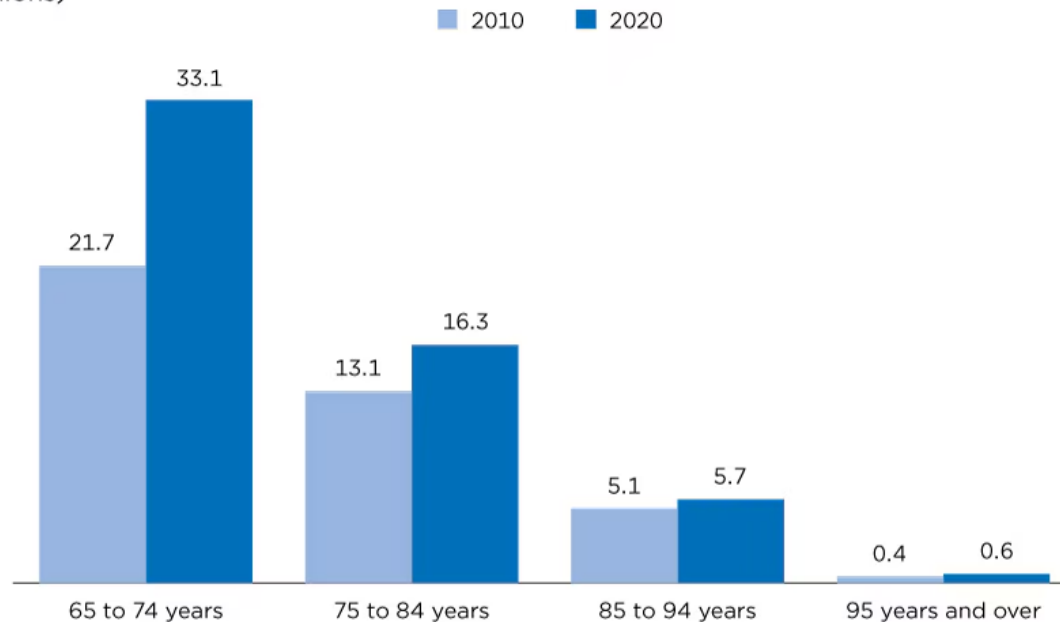


Note: For information on data collection, confidentiality protection, nonsampling error, and definitions, refer to <https://www2.census.gov/programs-surveys/decennial/2020/technical-documentation/complete-tech-docs/demographic-and-housing-characteristics-file-and-demographic-profile/2020census-demographic-and-housing-characteristics-file-and-demographic-profile-techdoc.pdf>.

Source: U.S. Census Bureau, Decennial Census of Population, 1900 to 2000; 2010 Census Summary File 1, and 2020 Census Demographic and Housing Characteristics File (DHC).

US Population is Aging

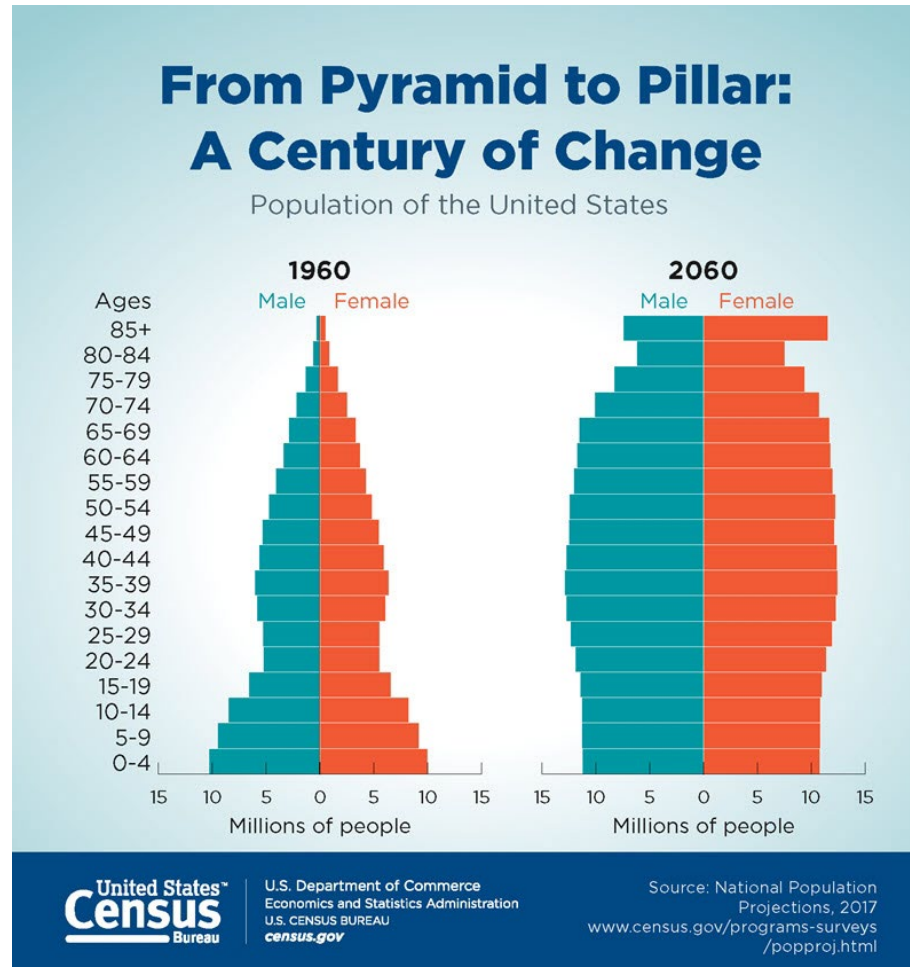
Figure 3.
Population Size of Older Age Groups: 2010 and 2020
(In millions)



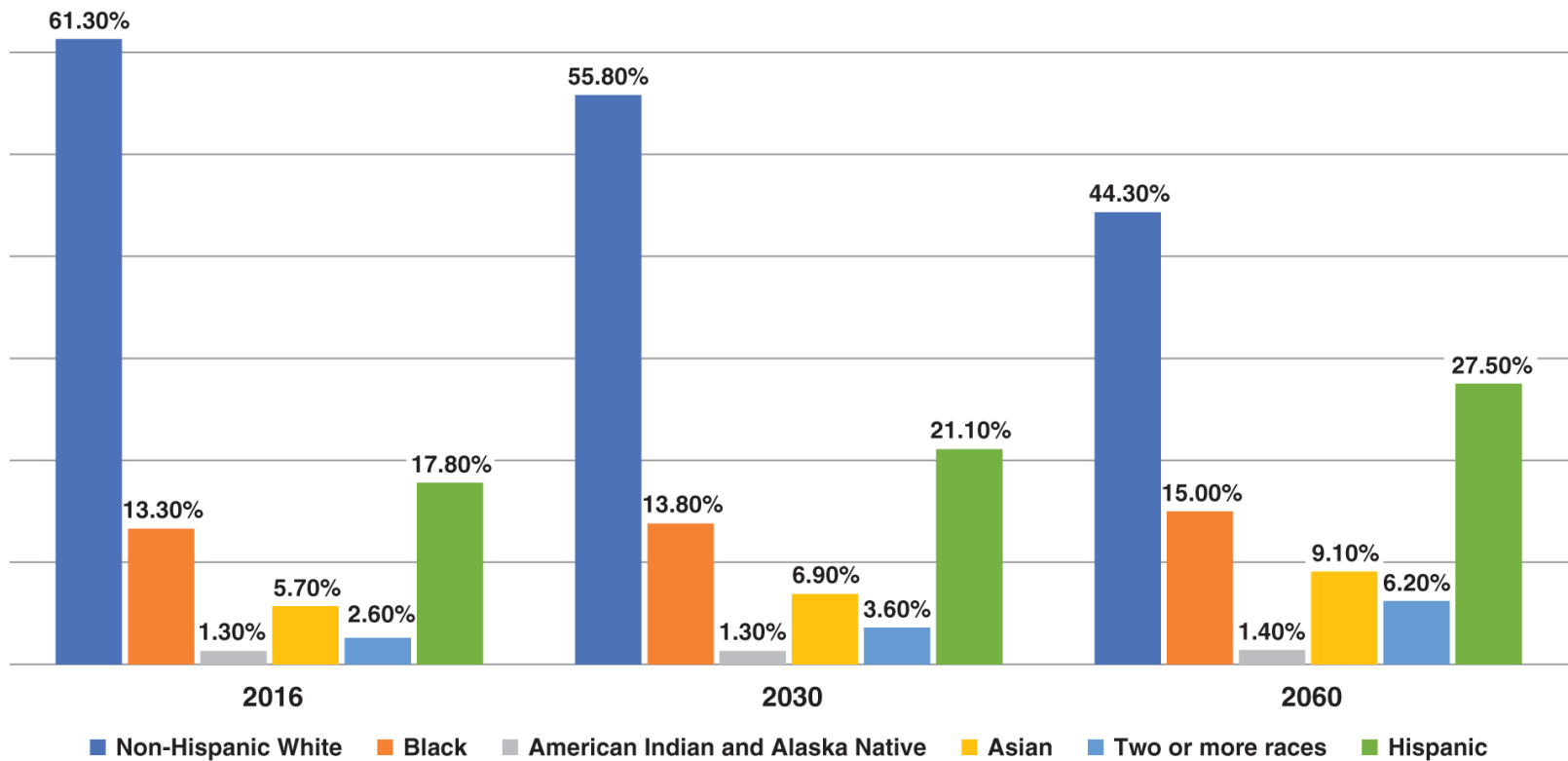
Note: For information on data collection, confidentiality protection, nonsampling error, and definitions, refer to <https://www2.census.gov/programs-surveys/decennial/2020/technical-documentation/complete-tech-docs/demographic-and-housing-characteristics-file-and-demographic-profile/2020census-demographic-and-housing-characteristics-file-and-demographic-profile-techdoc.pdf>.

Source: U.S. Census Bureau, 2020 Census Demographic and Housing Characteristics File (DHC).

US Population is Aging: Gender



US Population is Aging: Race/Ethnicity



Whitbourne, S.K., & Whitbourne, S.B (2020). Adult Development and Aging: Biopsychosocial Perspectives, 7th Edition. New York: Wiley.

World Population is Aging

Number (%) 65 and over as share of world population

2016 8.5%

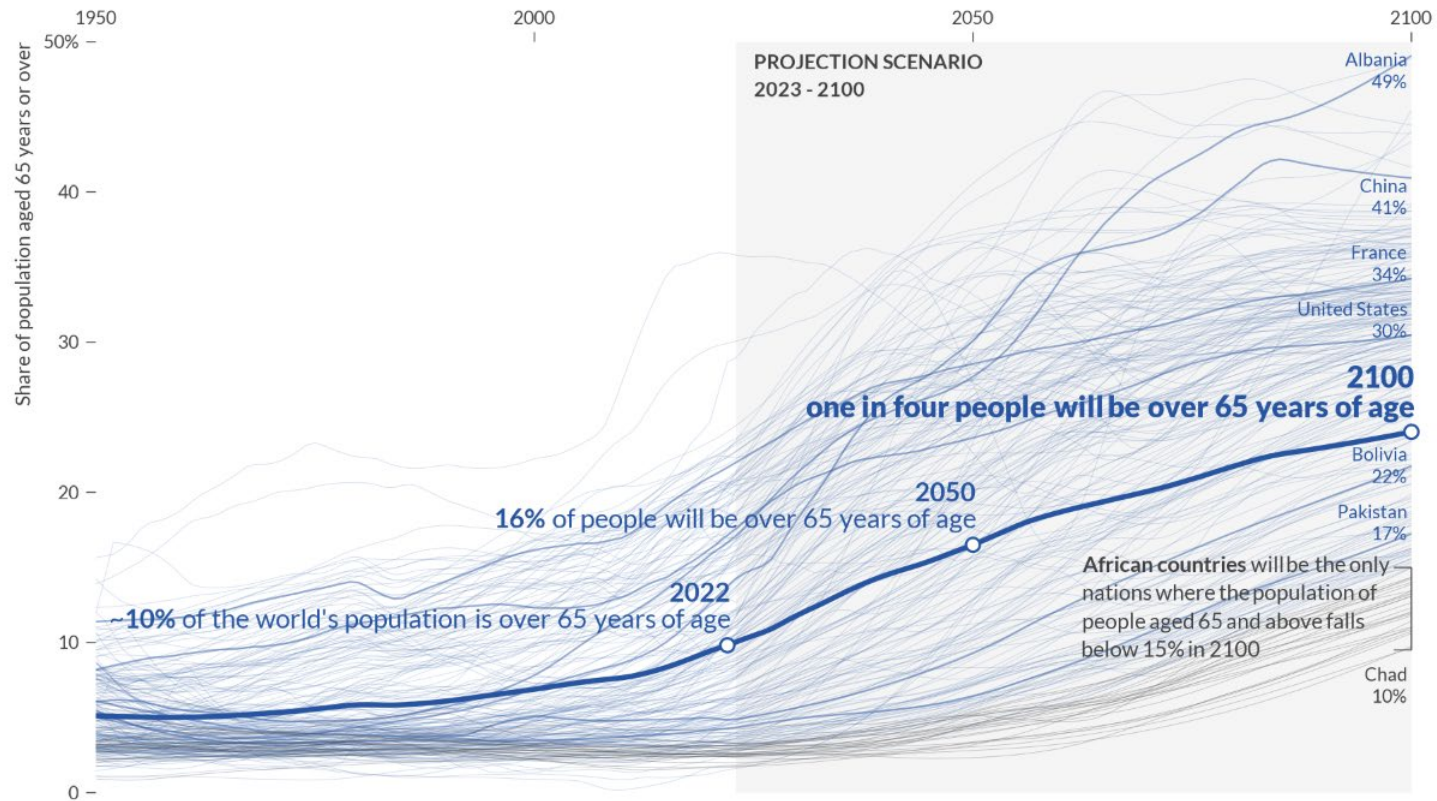
2050 17%

<https://www.nia.nih.gov/news/worlds-older-population-grows-dramatically>

World Population is Aging

The world's population is aging

The population of people aged 65 and above is rising in every country, and will continue to do so in the future



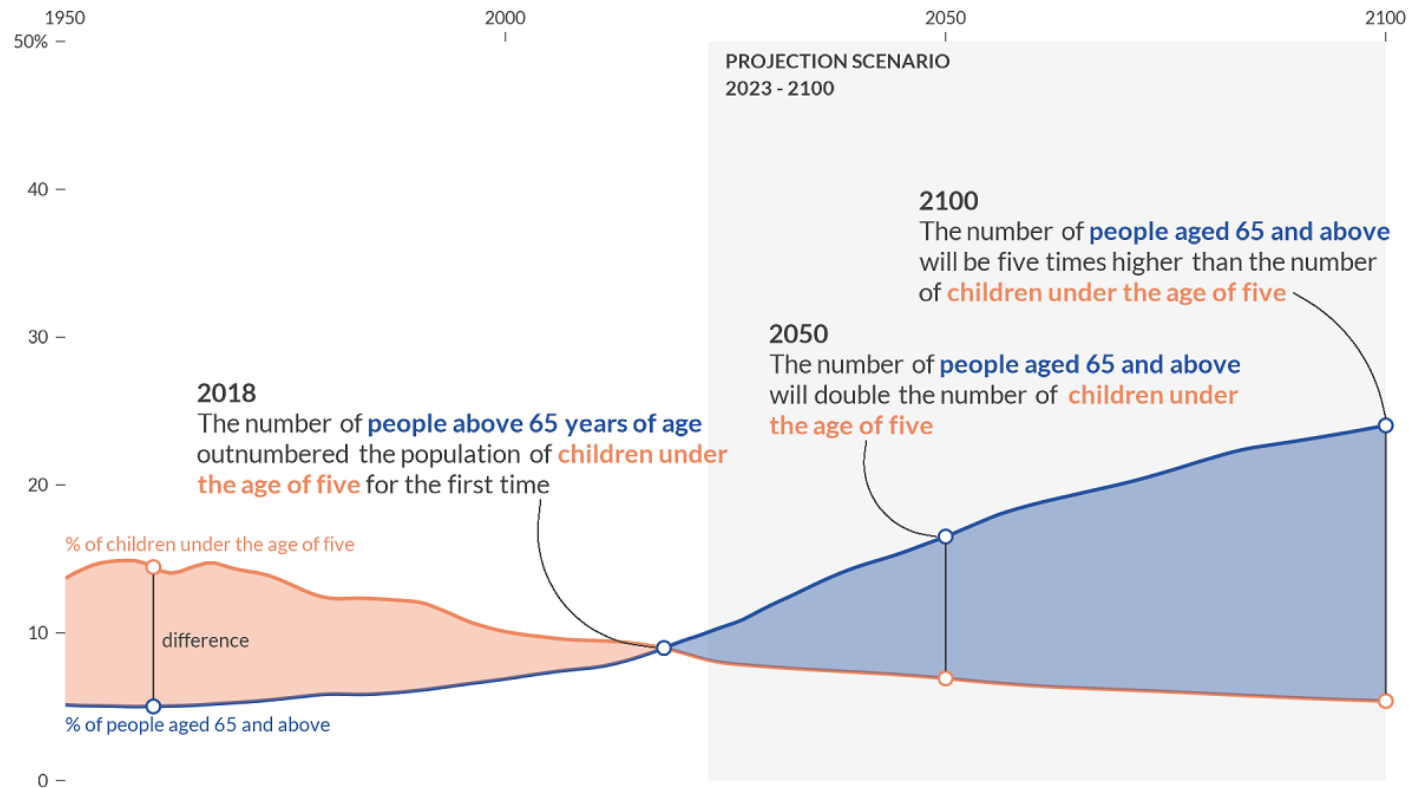
Visualization: Pablo Alvarez | Source: United Nations World Population Prospects (2022) (via OurWorldInData.org)

Source: <https://www.visualcapitalist.com/cp/charted-the-worlds-aging-population-1950-to-2100/>

World Population is Aging

The world's population is aging

Global population share of **children under the age of five** versus the global population of **people over the age of 65**

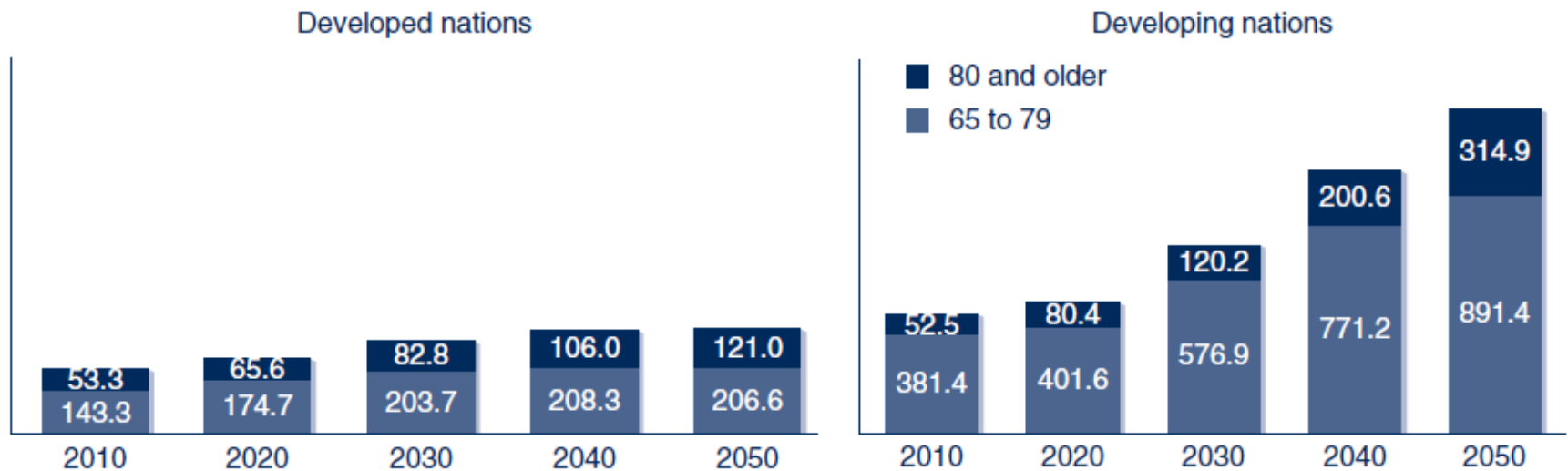


Visualization: Pablo Alvarez | Source: United Nations World Population Prospects (2022) (via OurWorldInData.org)

Source: <https://www.visualcapitalist.com/cp/charted-the-worlds-aging-population-1950-to-2100/>

World Population is Aging

Average Annual Percent Growth of Older Population in Developed and Developing Countries, 1950–2050



Source: U.S. Bureau of the Census. (2009). Census Bureau Reports World's Older Population Projected to Triple by 2050. Retrieved from http://www.census.gov/Press-Release/www/releases/archives/international_population/013882.html

What is Aging?

Chronological Age vs. Functional

Chronological

Continuous: Number of years since birth

Age categories

Functional

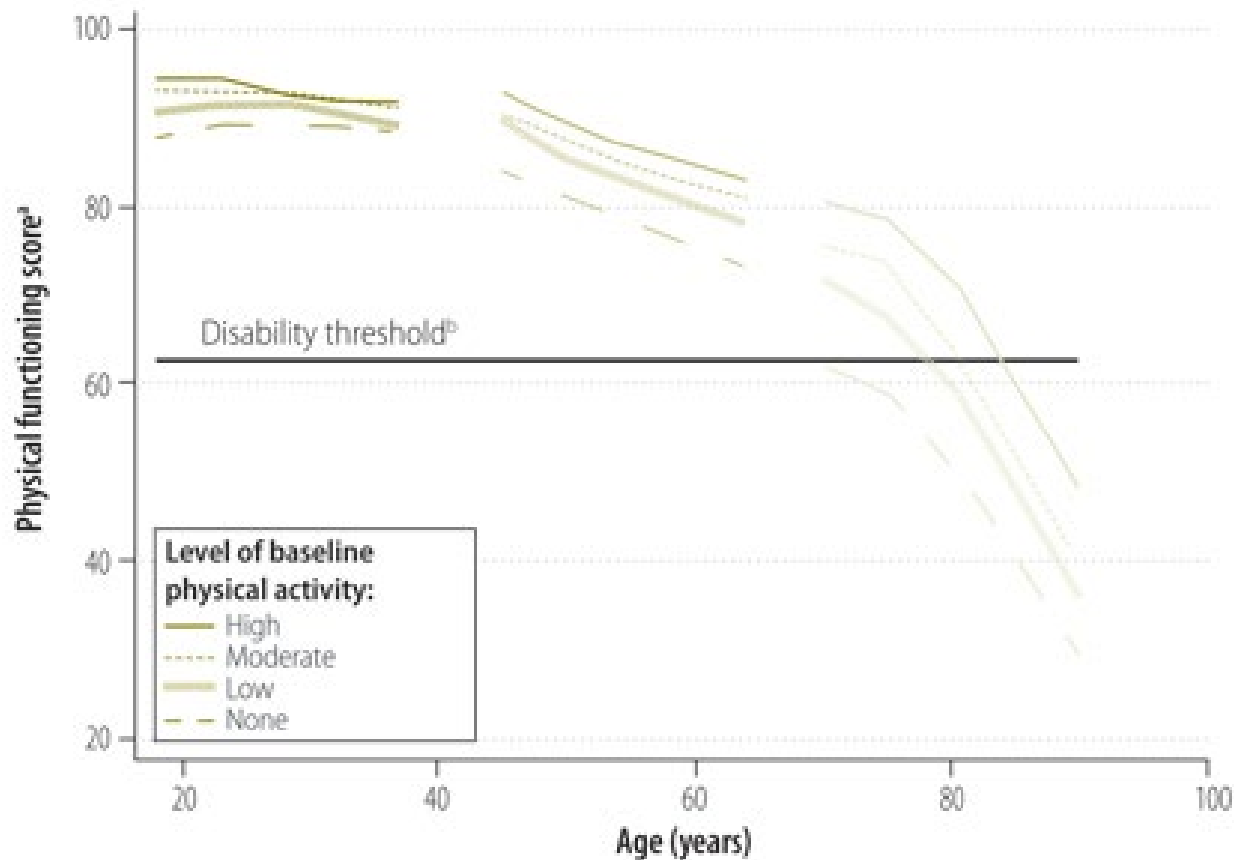
Biopsychosocial definitions



Chronological Age: Common Age Category Labels

Late Adolescence	18-24
Early adulthood	25-40
Middle adulthood	40-64
Young-old	65-74
Old-old	75-84
Oldest-old	85+
Centenarians	100-109
Super-centenarians	110+

Functional Age



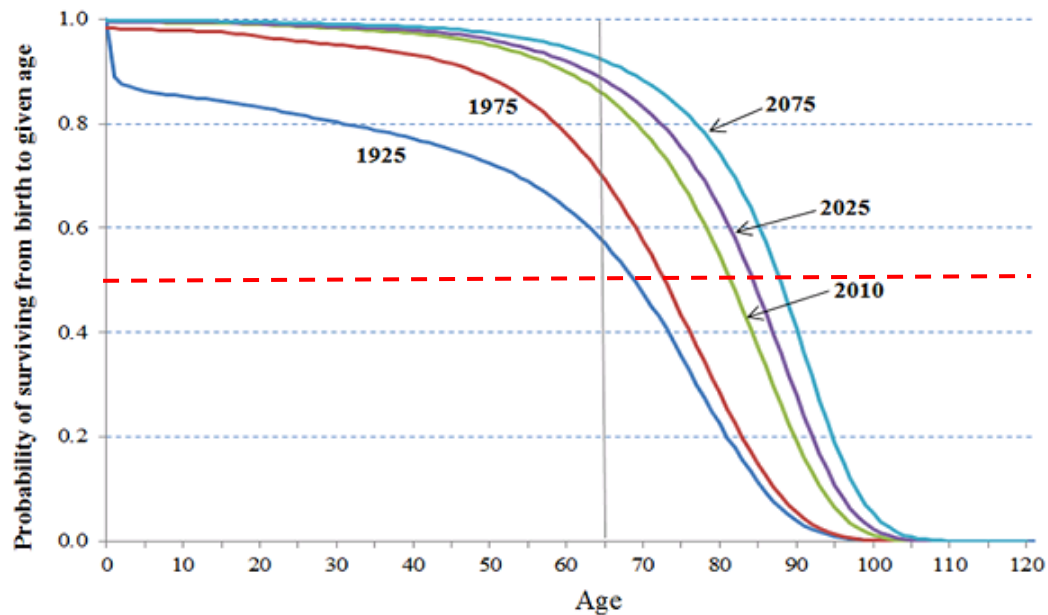
World Health Organization <http://www.who.int/bulletin/volumes/91/9/13-123075/en/>

Other Age Terms

Biological age	Heart rate Blood pressure Glucose levels Muscle and bone strength
Psychological age	Reaction time Learning ability Memory Intelligence
Social age	Parental, grandparental status Work role Retirement status
<i>Independence/disability</i>	<i>Independent activities</i> <i>Receiving care</i> <i>Frailty</i>

Biological Age

Life expectancy: Average 78.7 yrs in 2010



Median

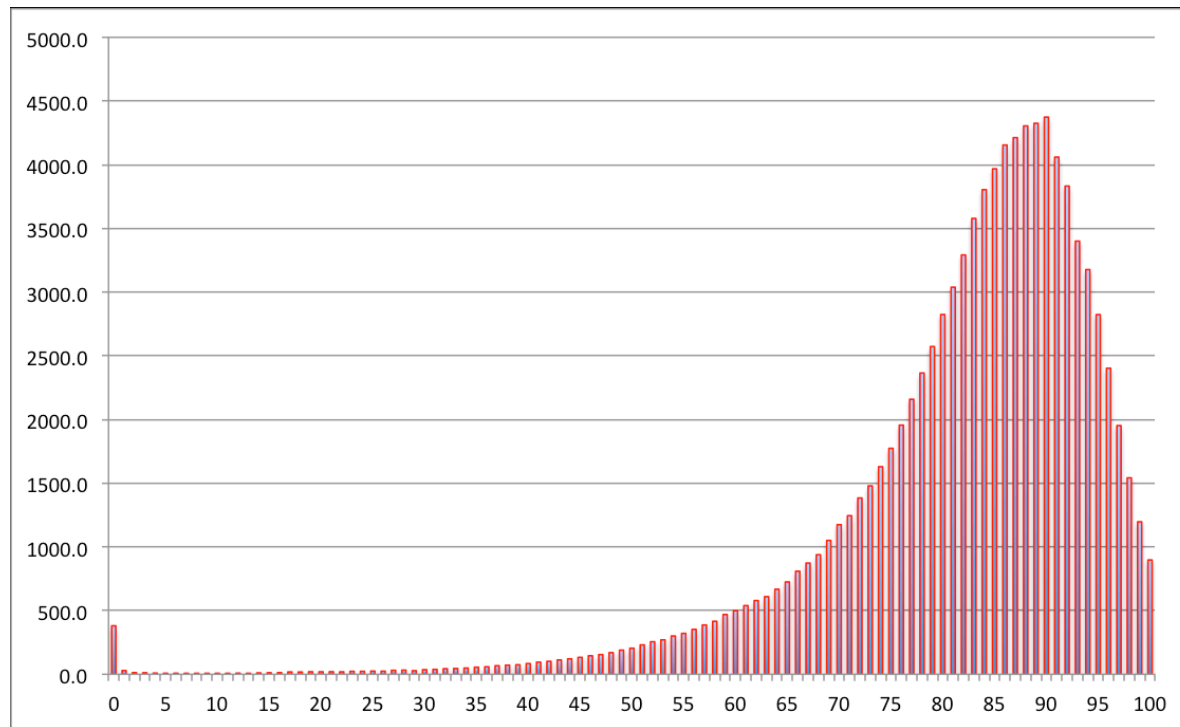
Boundless life expectancy: The future of aging populations

Johannes Koettl

<https://www.brookings.edu/blog/future-development/2016/03/23/boundless-life-expectancy-the-future-of-aging-populations/>

Biological Age

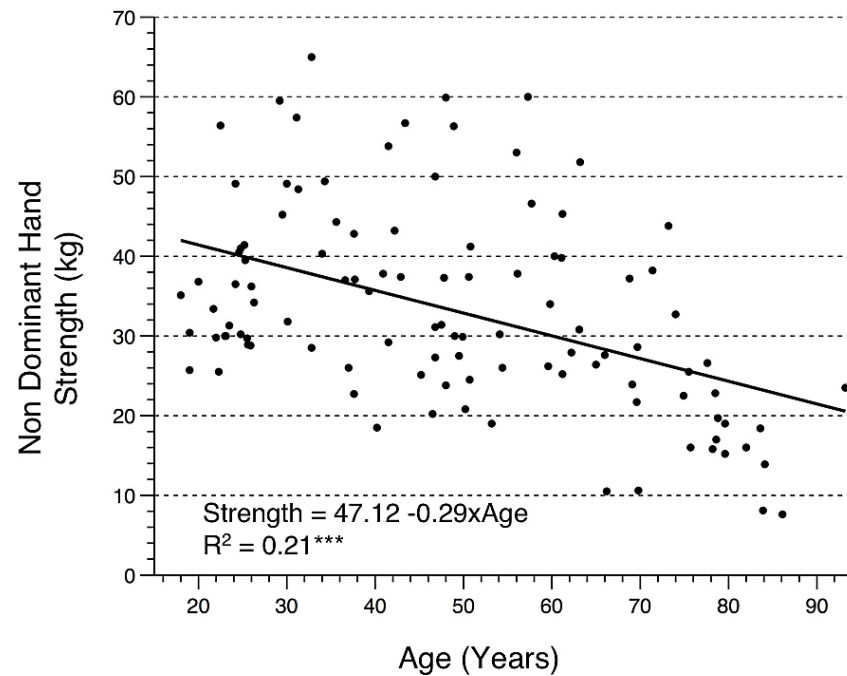
Life expectancy: e.g., women in UK



UK national archives <http://nationalarchives.gov.uk/webarchive/>

Biological Age

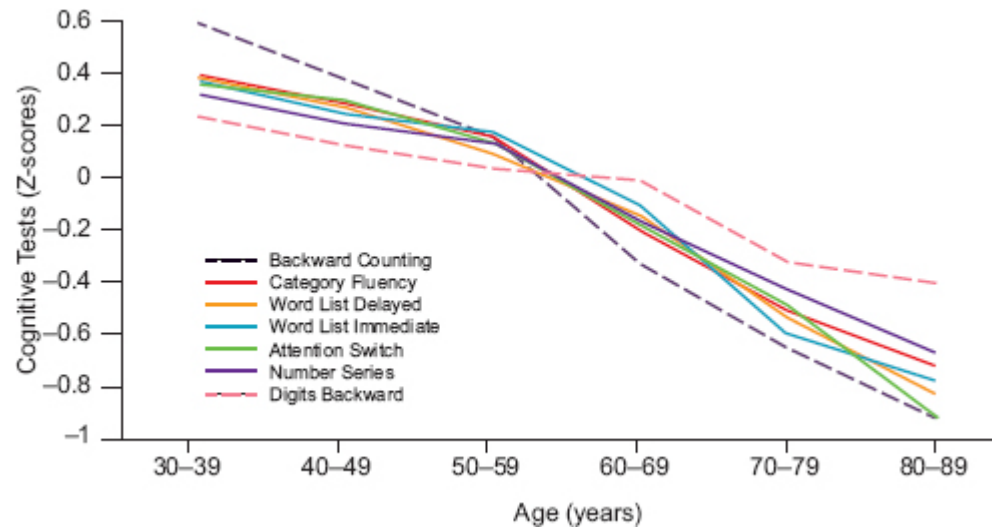
Muscle strength



Martin, J. A., Ramsay, J., Hughes, C., Peters, D. M., & Edwards, M. G. (2015). Age and grip strength predict hand dexterity in adults. *PloS one*, 10(2), e0117598.

Psychological Age

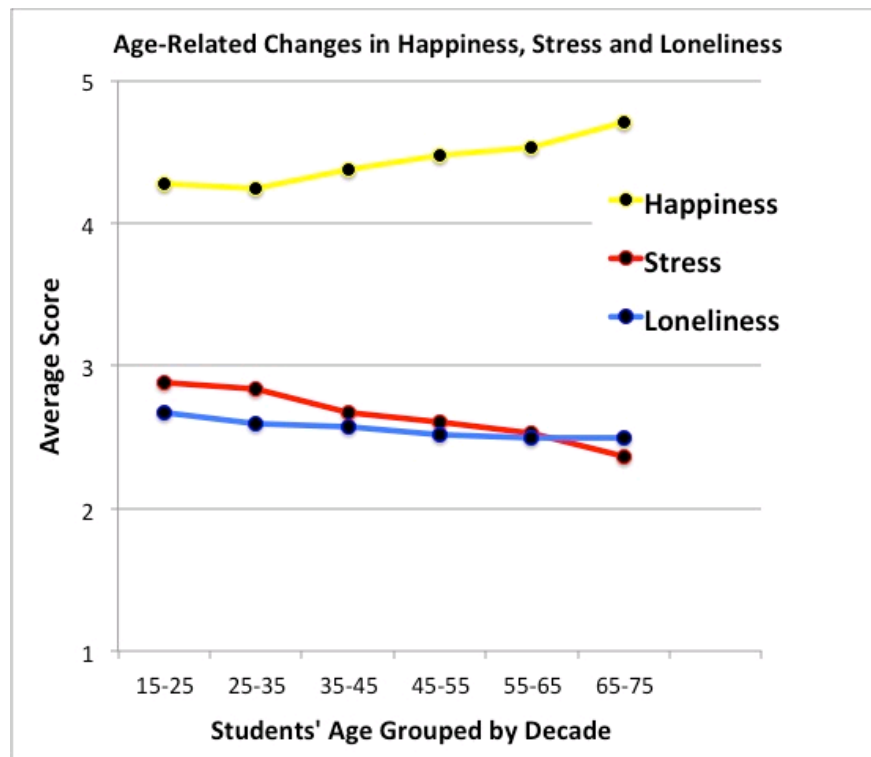
e.g., memory



Blazer, D. G., Yaffe, K., & Liverman, C. T. (Eds.). (2015). Cognitive aging: Progress in understanding and opportunities for action. National Academies Press.
<https://www.nap.edu/read/21693/chapter/5>

Psychological Age

e.g., emotional



Simon Thomas & Green (2015) UC Berkeley Greater Good project

http://greatergood.berkeley.edu/article/item/wheres_your_spot_on_the_happiness_starting_block

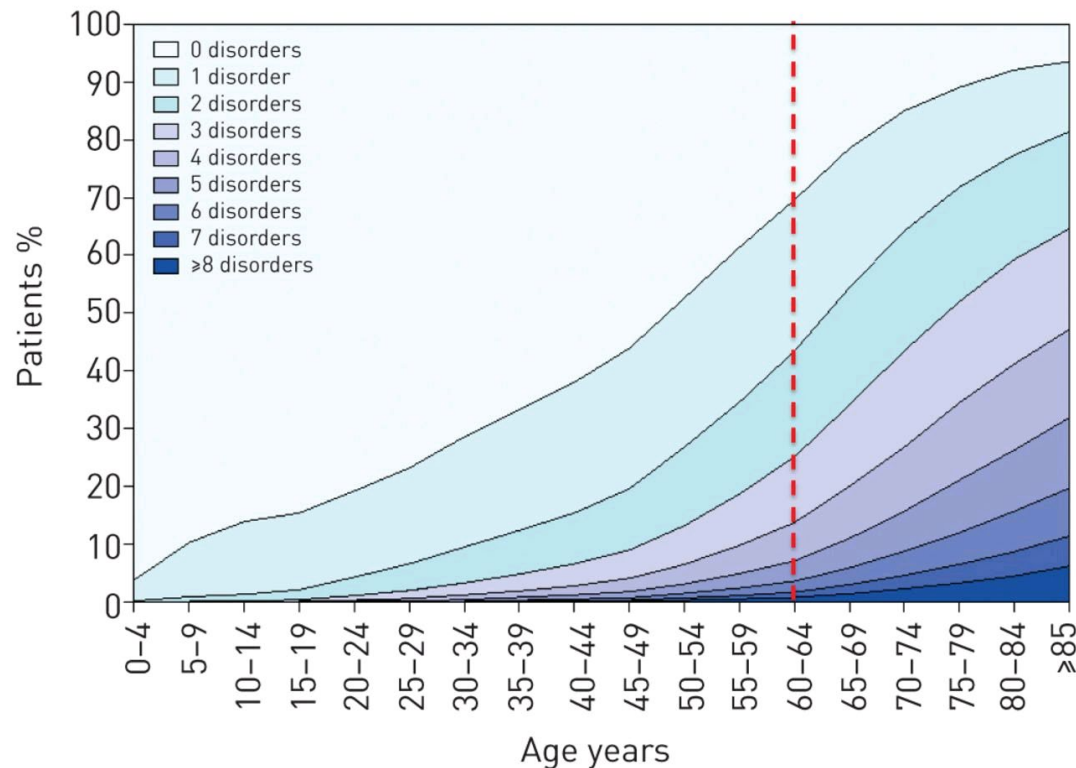
Social Age

e.g., roles



Individual Variation Increases with Age

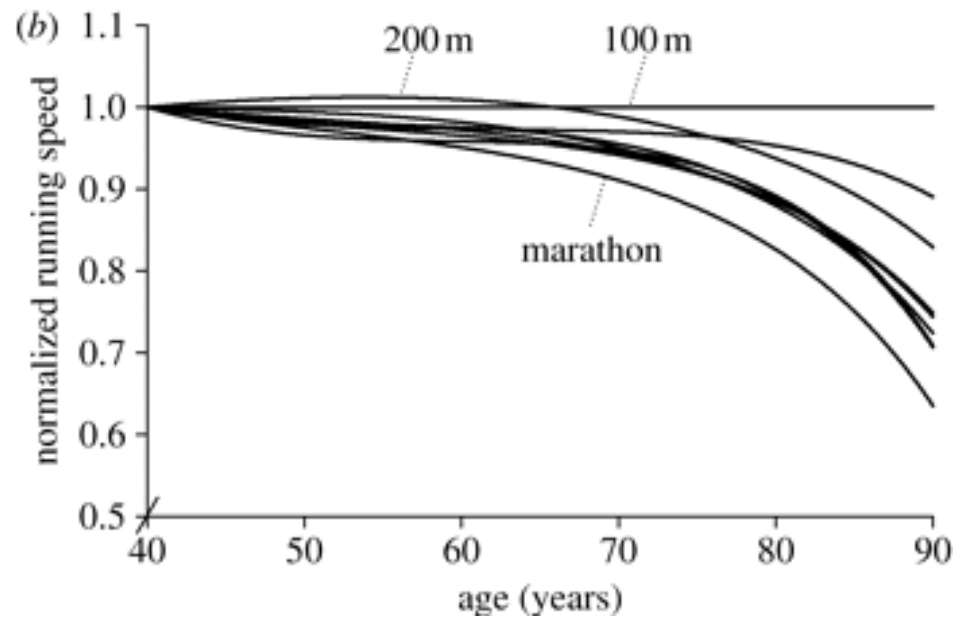
Increasing Variation: Disease



Divo, M. J., Martinez, C. H., & Mannino, D. M. (2014). Ageing and the epidemiology of multimorbidity. *European Respiratory Journal*.

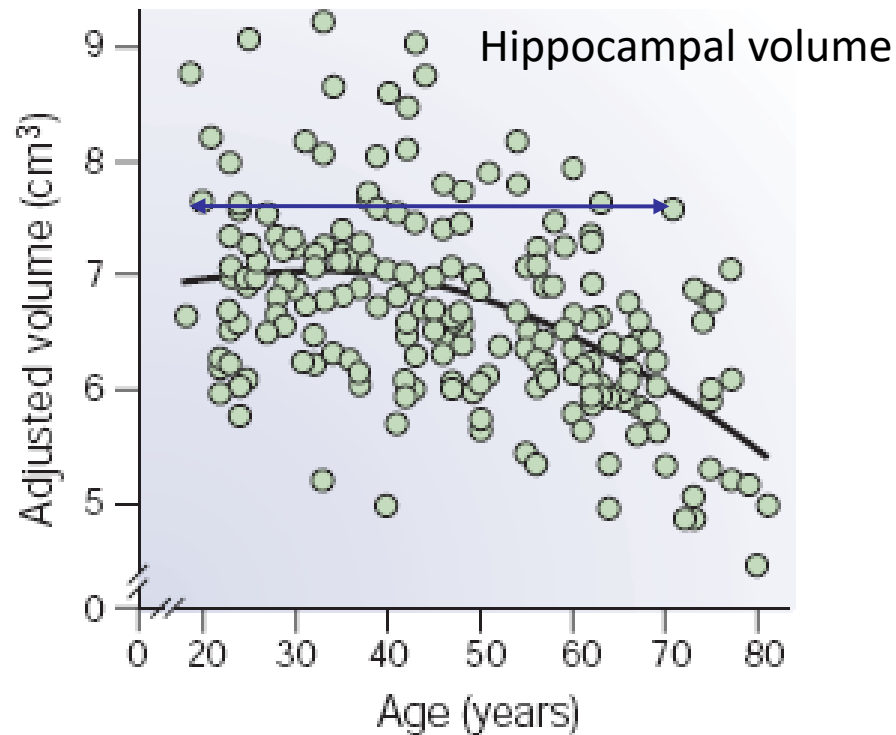
Rittweger, diPrampo, Maffulli, & Narici (2009)

Increasing Variation: Running Speeds



Rittweger, diPrampo, Maffulli, & Narici (2009)

Increasing Variation: Neurological

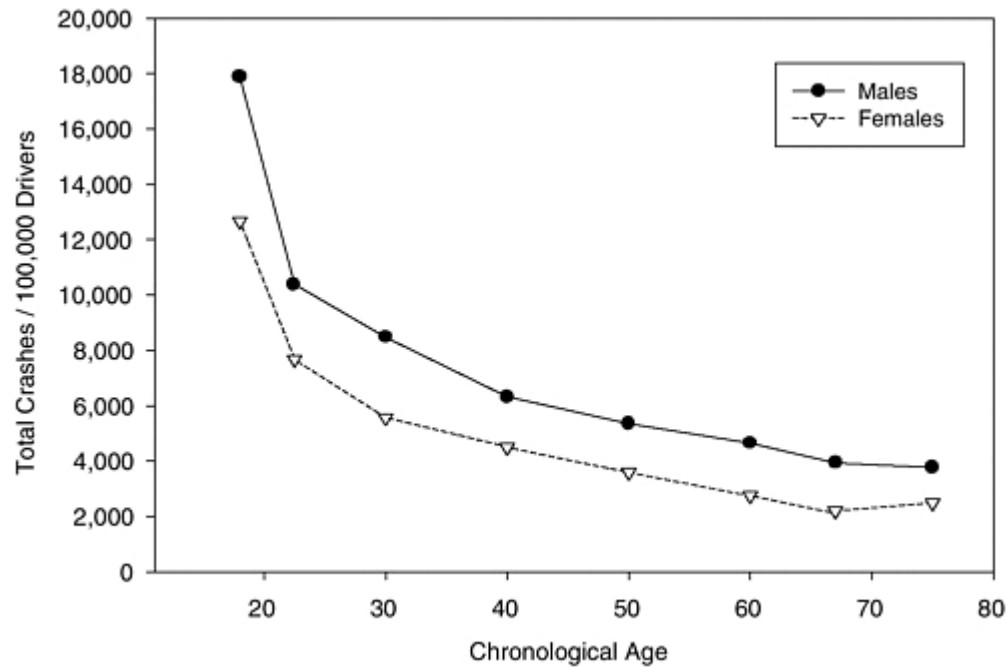


Whitbourne & Whitbourne (2014)

Individual Variation Does Not Always Increase with Age

Equal or Less Variation

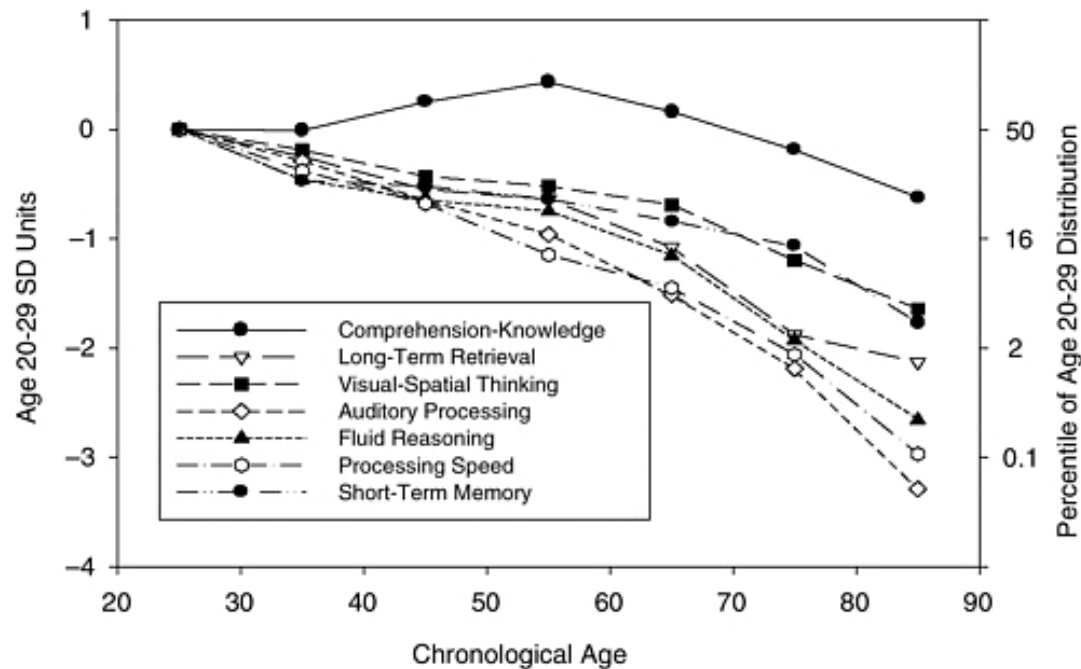
e.g., driving performance



SOURCE: Table 63, *Traffic Safety Facts 1999*, National Highway Traffic Safety Administration, U.S. Department of Transportation.

Within-Person Variation Also Occurs

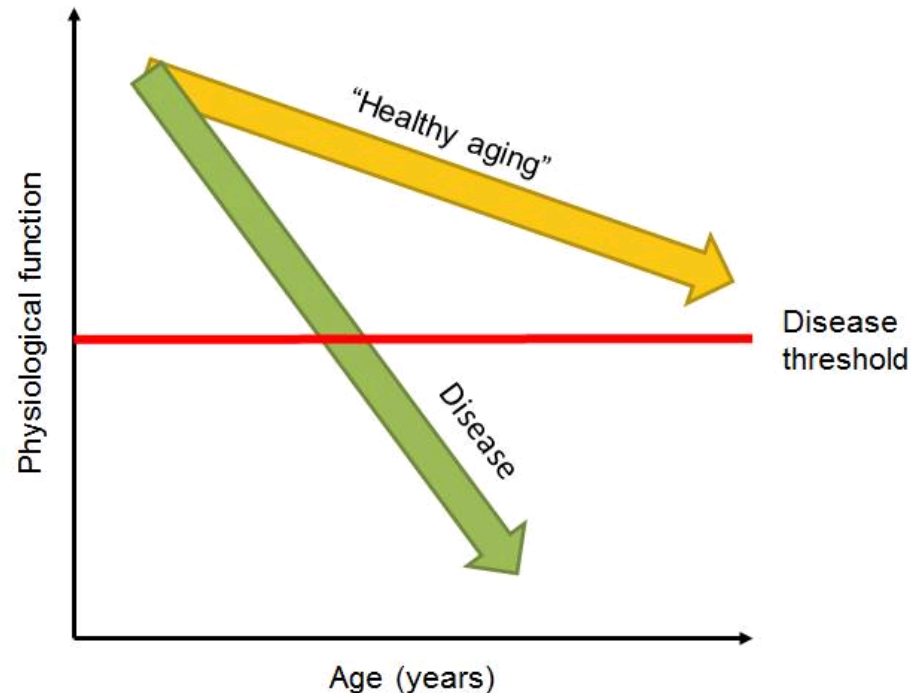
Within-Person Variation: Memory



Wegman & McGee (2004)

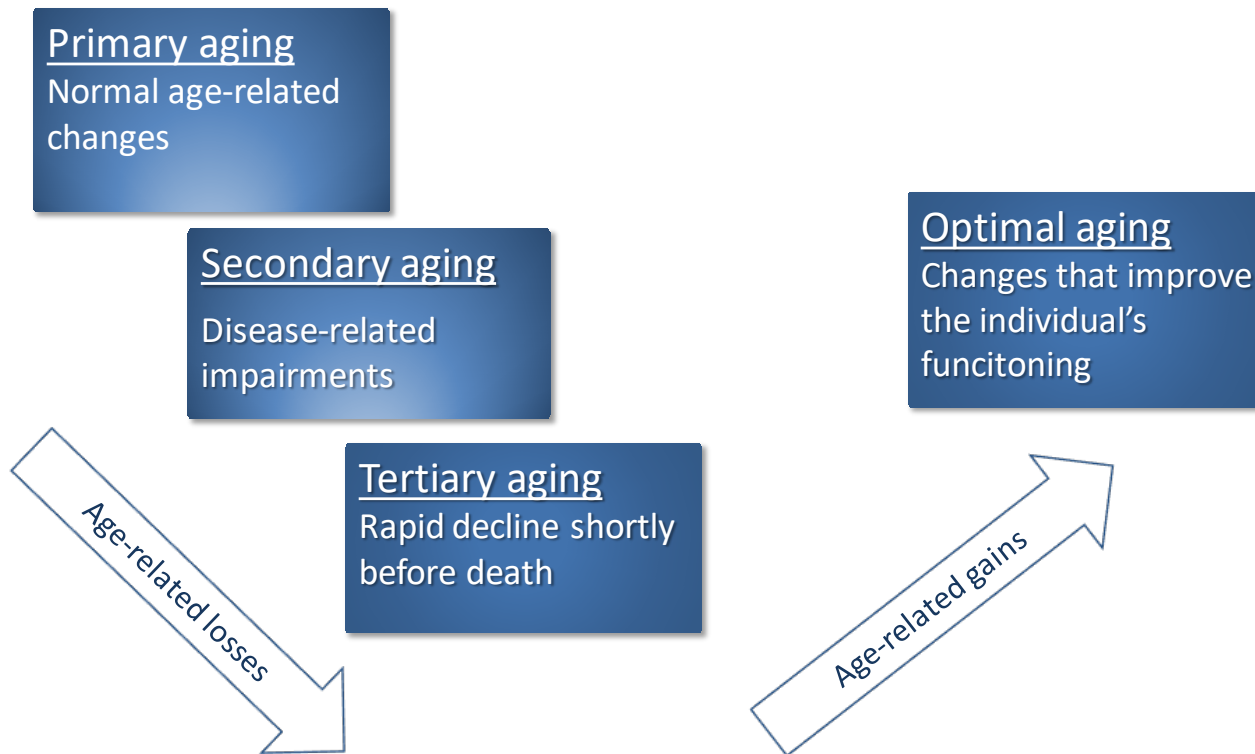
Healthy (“Normal”) Aging vs. Disease

Healthy (“Normal”) Aging vs. Disease



<http://www.longevityreporter.org/blog/2016/12/5/biological-aging-is-a-disease-and-it-is-time-to-recognize-it-as-such>

Normal Aging vs. Disease

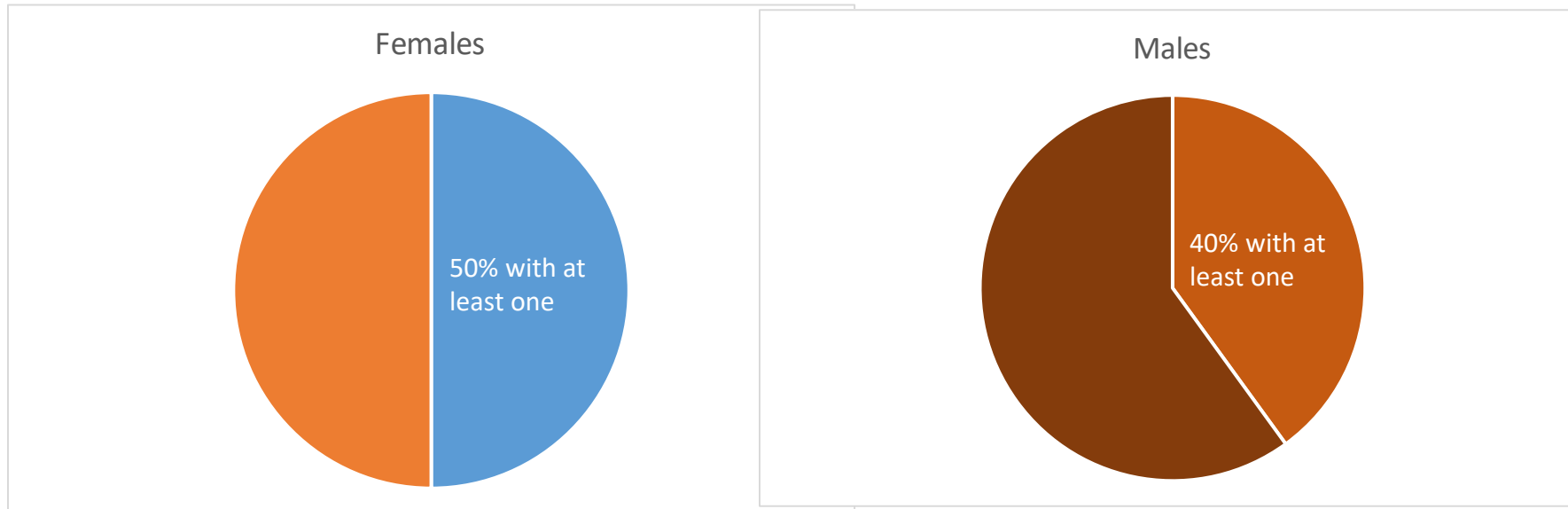


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Disease in Older US Population

Disease in Older US Population

Percent 65+ with at least one medical condition



Anderson, G., & Horvath, J. (2004). The growing burden of chronic disease in America. *Public health reports*, 119(3), 263.

Disease in Older US Population

Most Prevalent Chronic Conditions

Heart disease

Cancer

Stroke

Type 2 Diabetes

Obesity

Arthritis

Disease in Older US Population

Leading Causes of Death (approx. percent)

- Heart disease: 614,348 (32%)
- Cancer: 591,699 (31%)
- Chronic lower respiratory diseases: 147,101 (8%)
- Accidents (unintentional injuries): 136,053 (7%)
- Stroke (cerebrovascular diseases): 133,103 (7%)
- Alzheimer's disease: 93,541 (5%)
- Diabetes: 76,488 (4%)
- Influenza and Pneumonia: 55,227 (3%)
- Nephritis, nephrotic syndrome and nephrosis: 48,146 (2%)
- Intentional self-harm (suicide): 42,773 (2%)

Disease in Older US Population

The U.S. Centers for Disease Control and Prevention (CDC) estimates that eliminating three risk factors— **poor diet, inactivity, and smoking** — would prevent:

- 80% of heart disease and stroke;

- 80% of type 2 diabetes; and,

- 40% of cancer

http://www.fightchronicdisease.org/sites/default/files/docs/GrowingCrisisofChronicDiseaseintheUSfactsheet_81009.pdf

Disease in Older US Population

Quitting smoking before the age of 40 reduces the risk of dying from smoking-related disease by about 90%

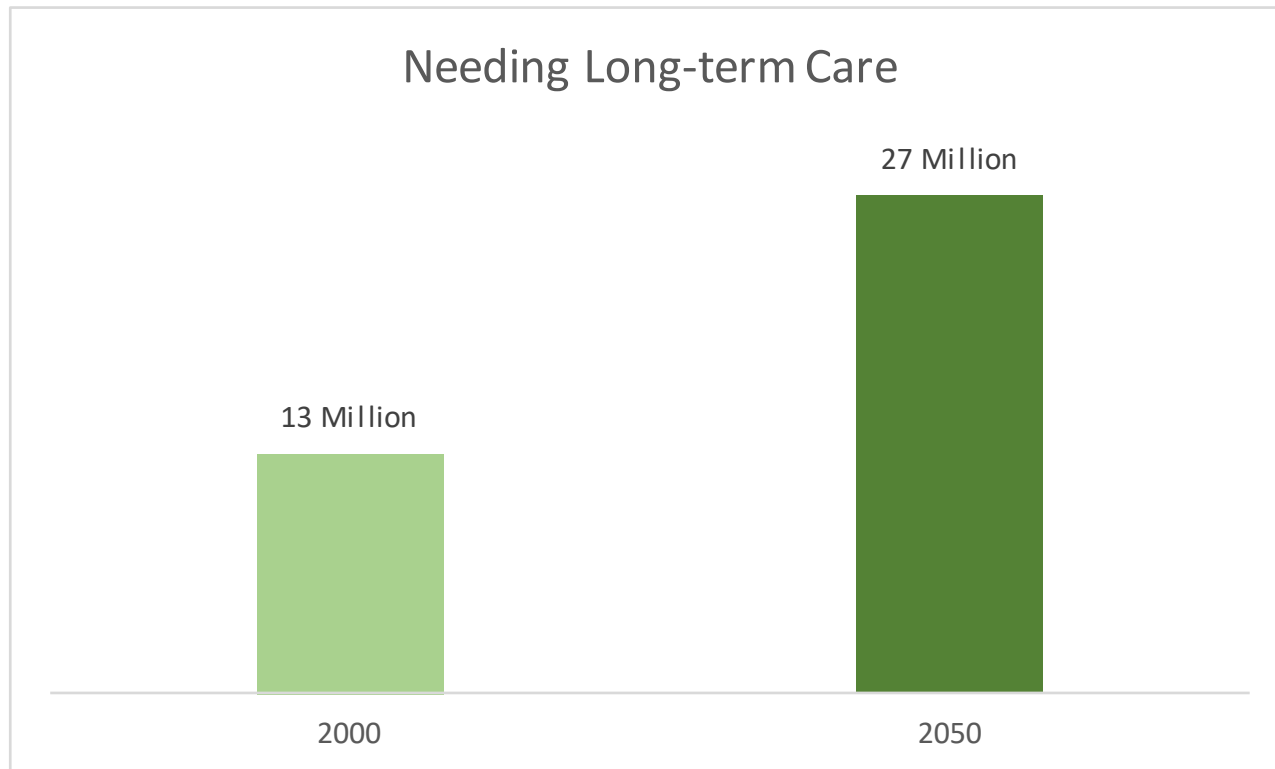
https://www.cdc.gov/tobacco/data_statistics/fact_sheets/.../tobacco_related_mortality/

Disease in Older US Population

Smoking causes 80 percent and 90 percent of lung cancer deaths in women and men, respectively. Men who smoke are 23 times more likely to develop lung cancer. Women are 13 times more likely, compared to never smokers

www.lung.org/lung-health-and.../lung...cancer/...cancer/lung-cancer-fact-sheet.html

Long-Term Care in Older US Population



Family Caregiver Alliance
<https://www.caregiver.org/selected-long-term-care-statistics>

Long-Term Care in Older US Population

RESIDENTS

Assisted living communities serve those who need help with some activities of daily living (ADLs) and health care services.

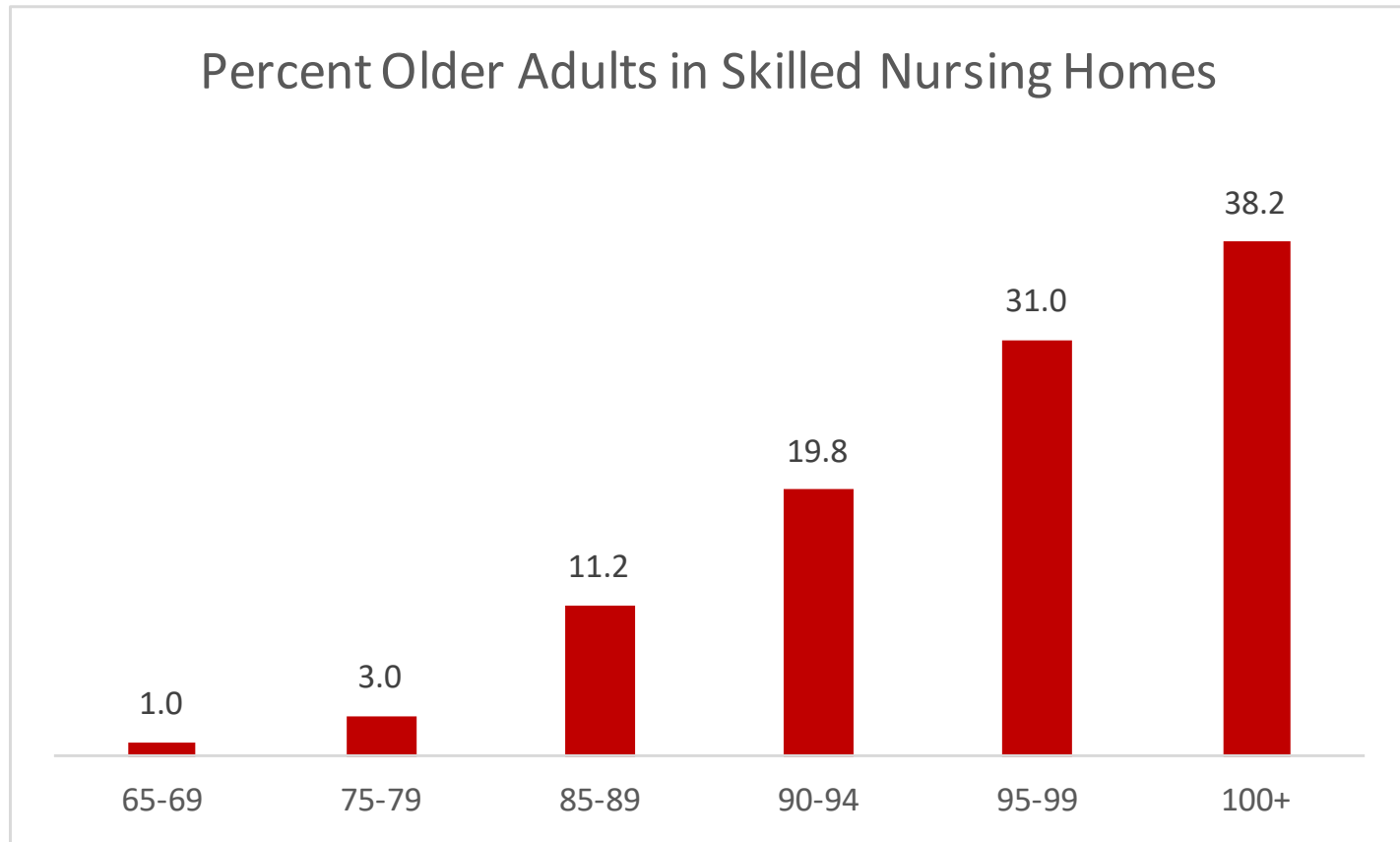
818,800 RESIDENTS NATIONWIDE

70% WOMEN
30% MEN

50% AGE 85 AND OLDER
31% AGE 75-84
13% AGE 65-74
6% AGE 65 AND UNDER

https://www.ahcancal.org/Advocacy/IssueBriefs/NCAL_Factsheet.pdf

Long-Term Care in Older US Population



2014 US Census Report

<https://www.census.gov/content/dam/Census/library/publications/2014/demo/p23-212.pdf>