Retirement and Cognitive Function in Later Life

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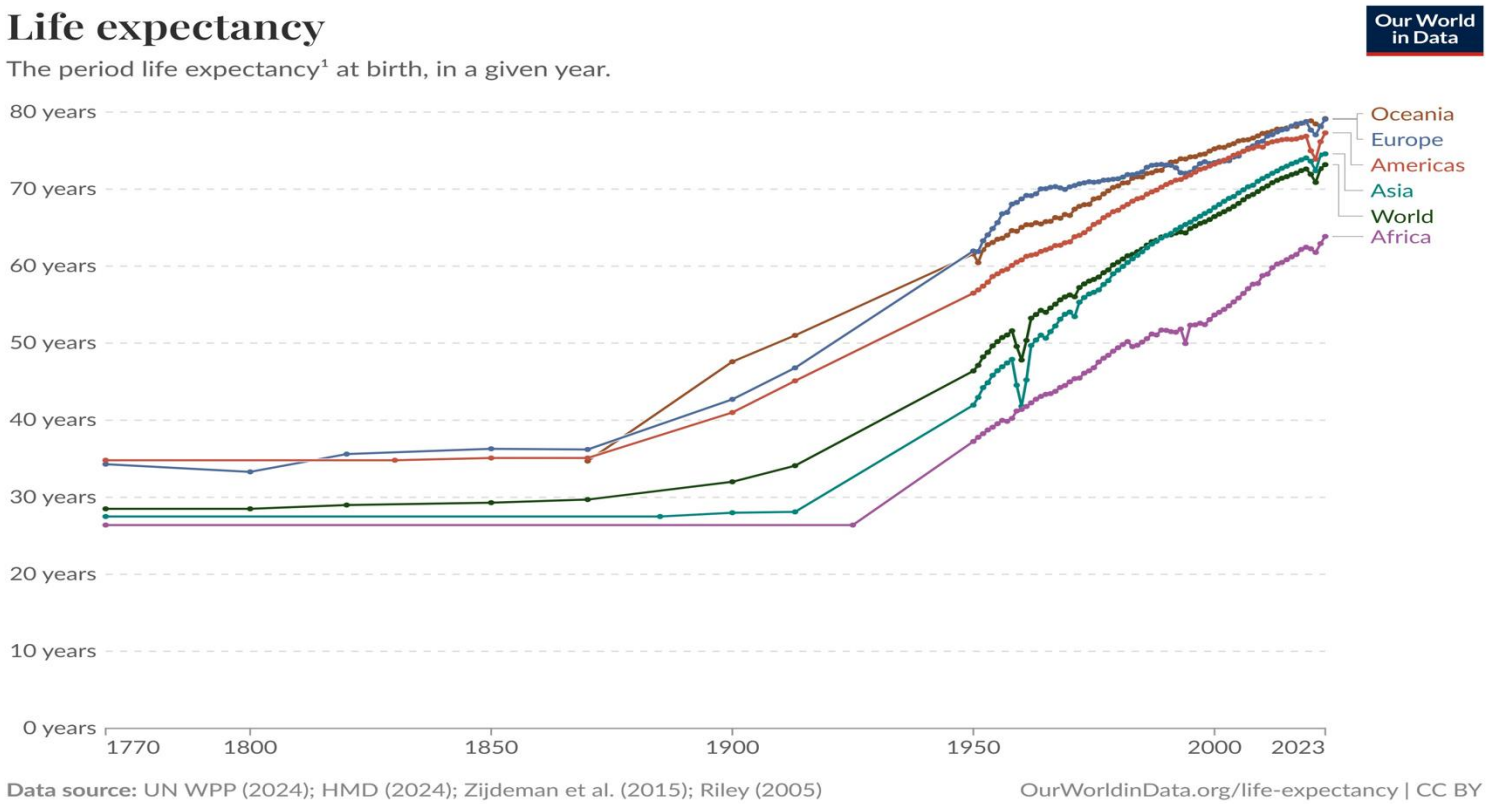
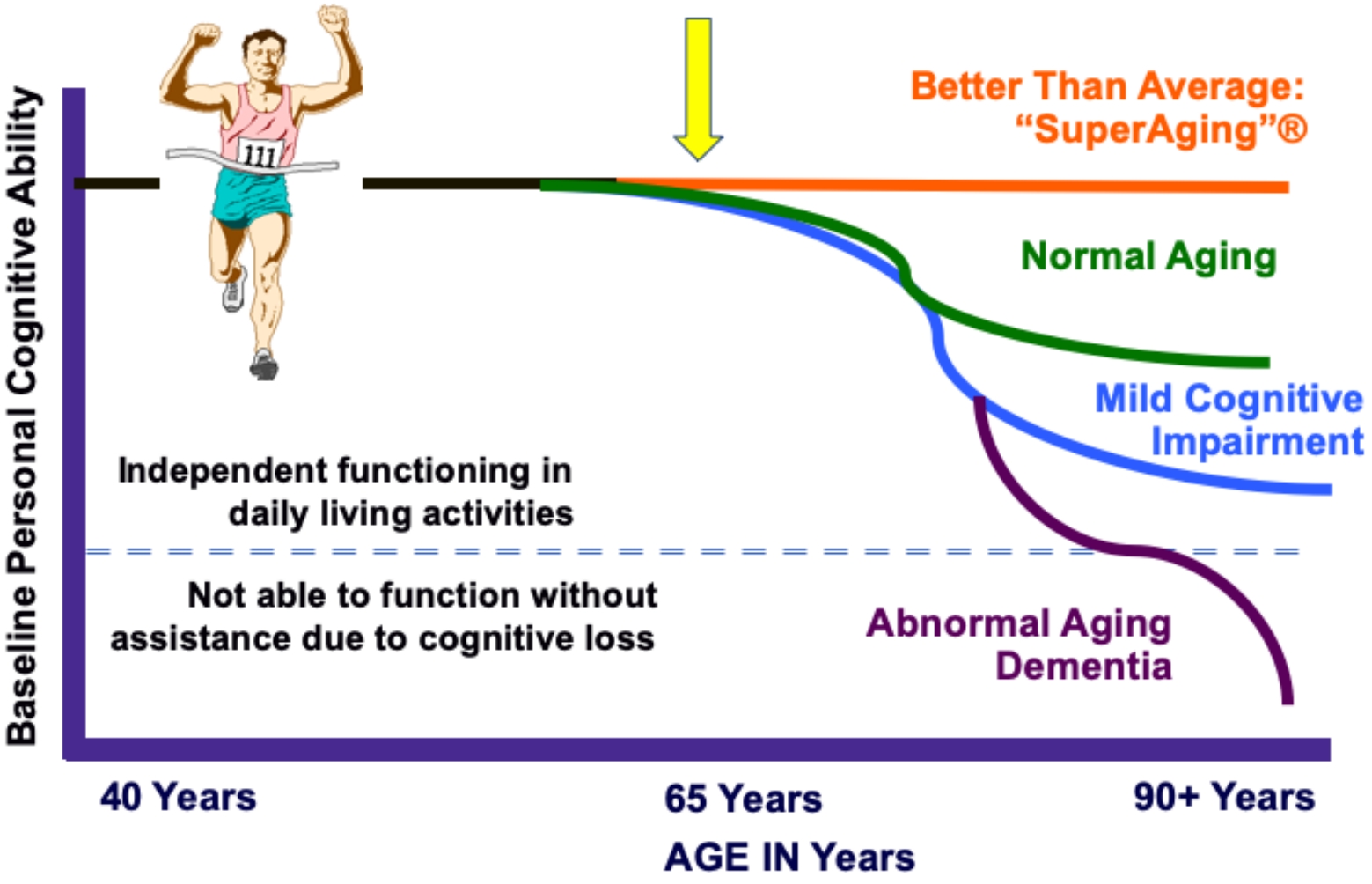
Life Expectancy has Increased Worldwide



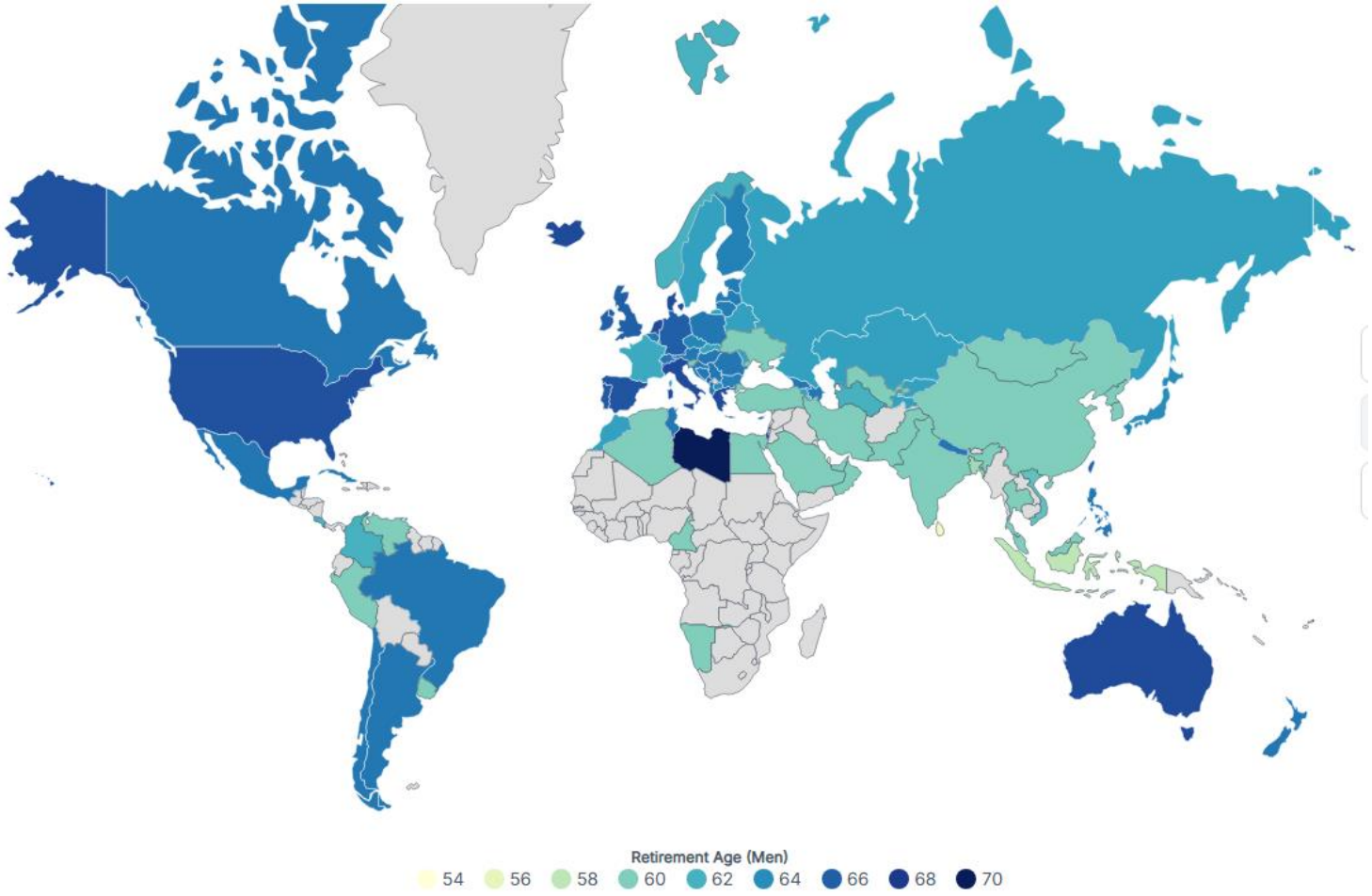
1. Period life expectancy: Period life expectancy is a metric that summarizes death rates across all age groups in one particular year. For a given year, it represents the average lifespan for a hypothetical group of people, if they experienced the same age-specific death rates throughout their whole lives as the age-specific death rates seen in that particular year. Learn more in our articles: "Life expectancy" – What does this actually mean? and Period versus cohort measures: what's the difference?

TRAJECTORIES OF AGE-RELATED COGNITIVE CHANGE
A Race Against Time

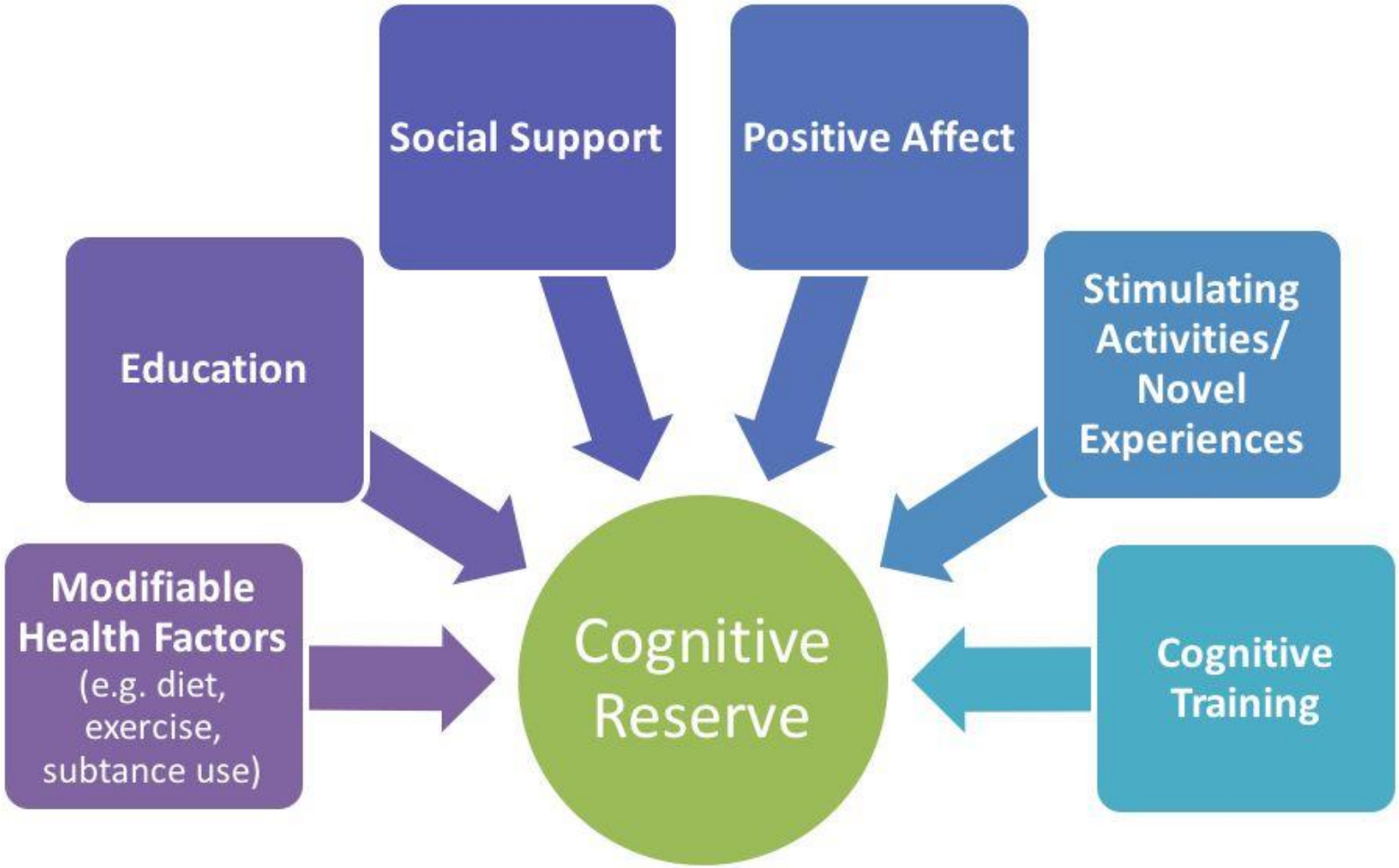


Retirement and Cognitive Function

Average Retirement Age by Country



Cognitive Reserve Theory



Cognitive Enrichment Theory
"Use it or Lose it"

Testable Hypotheses

Cognitive Reserve:

- Cognitively demanding occupations will be protective against cognitive decline in retirement

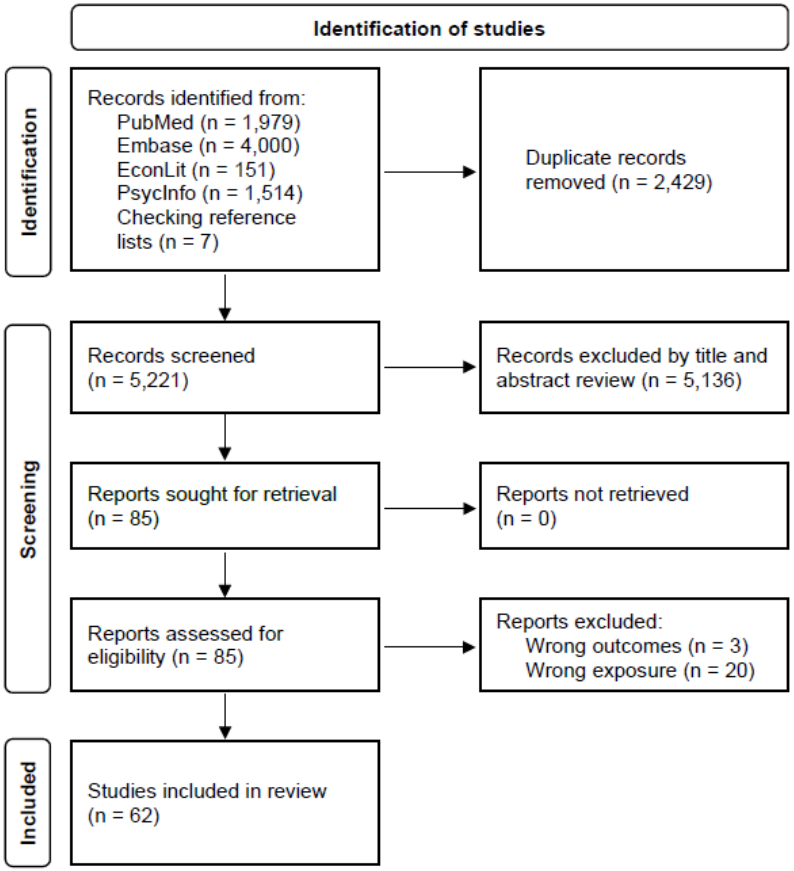
Use it or lose it:

- Retirement from cognitively demanding occupations would lead to a faster rate of decline or higher risk of impairment, if activities in retirement are insufficiently cognitively demanding.
- Higher levels of participation in enriching activities in retirement should be associated with a slower rate of cognitive decline.

Systematic Literature Review

- Searched 4 databases + reference lists
- 5,221 studies
- Abstract/title review
- Full paper review
- 62 studies

White, Arp & Coe (2025)



Two Types of Studies

Correlational Studies

- High Risk of bias
- Longitudinal Studies
- Variety of measures of cognitive function, decline, and/or dementia

Causal Studies

- Low risk of bias
- Reliable only at the LATE
- Relatively limited set of cognitive measures
- Often examine a one-time shift in cognitive functioning at the time of retirement or shortly after

Findings

- Retirement should be assessed as a continuous treatment, with effects that accumulate over time (dose-response)
- Controls are very important, especially education, sex, and age
- Substantial heterogeneity by sex, occupation, education exist

Findings

- 28 studies found that delaying retirement leads to cognitive benefits (4 did not)

- Particularly strong effects in the US and South Korea (Nishimura et al. 2018; Kim et al. 2018)
- Faster cognitive declines after retirement in Mediterranean and Eastern Europe compared to Western Europe (Mäcken et al. 2021)

Heterogeneity

- Retirement from physically demanding and/or blue-collar jobs can be cognitively beneficial (Mazzonna and Peracchi 2017; Coe et al. 2012)
- Slower cognitive decline in retirement among those with more cognitively complex jobs (Kajitani et al. 2017; Fisher et al. 2014) or higher education (de Grip et al., 2015; Ebeid and Oguzoglu 2023)
  - But not in China (Peng et al. 2022)
- Larger effects for men than women (Atalay et al. 2019, Dufouli et al. 2014)
  - But not in China (Lei and Liu 2018)

Findings: Retirement Pathways

- Only 1 study
- Japan – staying with same employer part-time after retirement correlated with worse cognitive outcomes (Mizuochi and Raymo 2022)

Might be ameliorated by involvement in mental leisure activities, such as reading and art (Lee et al. 2019)

Future Research

- Pathways to/during retirement
- Retirement not associated with pension ages
- Voluntary vs. Involuntary vs. Mandatory retirement
- Clinical definitions and domains of cognitive function

Conclusions

- Both types of studies support "use it or lose it"; mixed support for the cognitive reserve theory.
  - Cognitively stimulating and social activities in retirement
  - Particularly strong effects for men, individuals with lower-levels of education, the physical nature of the job, country setting.