

Building a Better Brain as We Age

Findings from the Religious Orders Study and Rush Memory and Aging Project

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Acknowledgments

Study Participants in the
Religious Orders Study
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Faculty and Staff of the Rush Alzheimer's Disease Center
Study collaborators across the USA and Canada

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I have no relevant disclosures

Motivating Question: How can we prevent dementia?

No Dementia
Risk Factors



Dementia

Examine Risk Factor in relation to:

- Time to MCI or Dementia in years (Hazard Ratio)
- Age of Onset (A of O) in... age
- Rate of decline in cognition over time in years

The Religious Orders Study

- Began in 1993
- > 1,500 older nuns, priests, and brothers without dementia from across the U.S.
- All agreed to annual clinical evaluation
- All agreed to brain donation
- > 400 have developed dementia
- > 600 have developed MCI
- > 850 brain autopsies









The Rush Memory and Aging Project

... because memories should last a lifetime



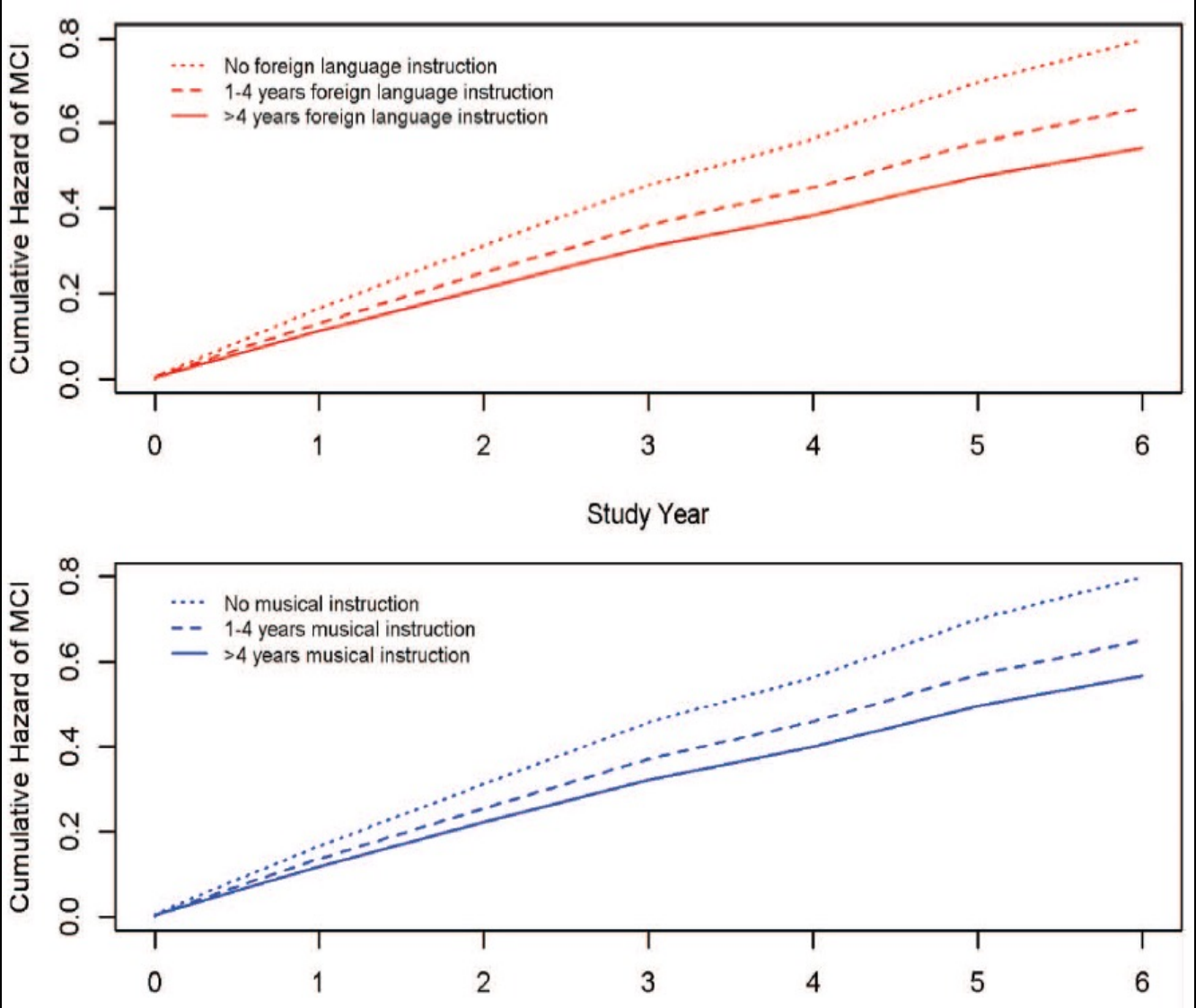
- Began in 1997
- > 2,300 residents without dementia from across the greater Chicago area
- All agreed to annual clinical evaluation
- All agreed to donate brain, spinal cord, muscle, and nerve at the time of death
- > 400 have developed dementia
- > 625 have developed MCI
- > 1000 autopsies





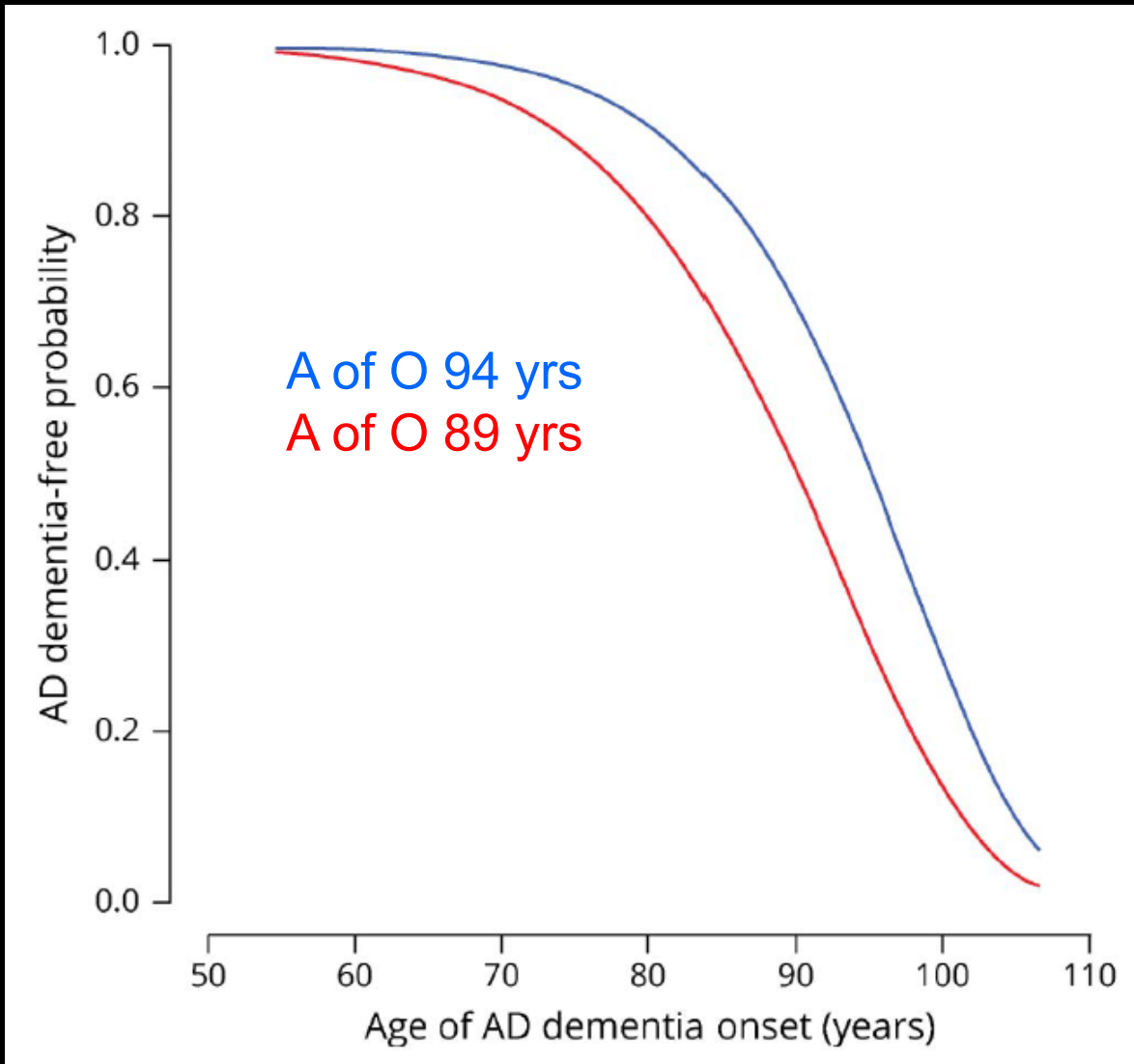
Early Life Instruction in Foreign Language and Music and Incidence of Mild Cognitive Impairment

Pick your parents well!



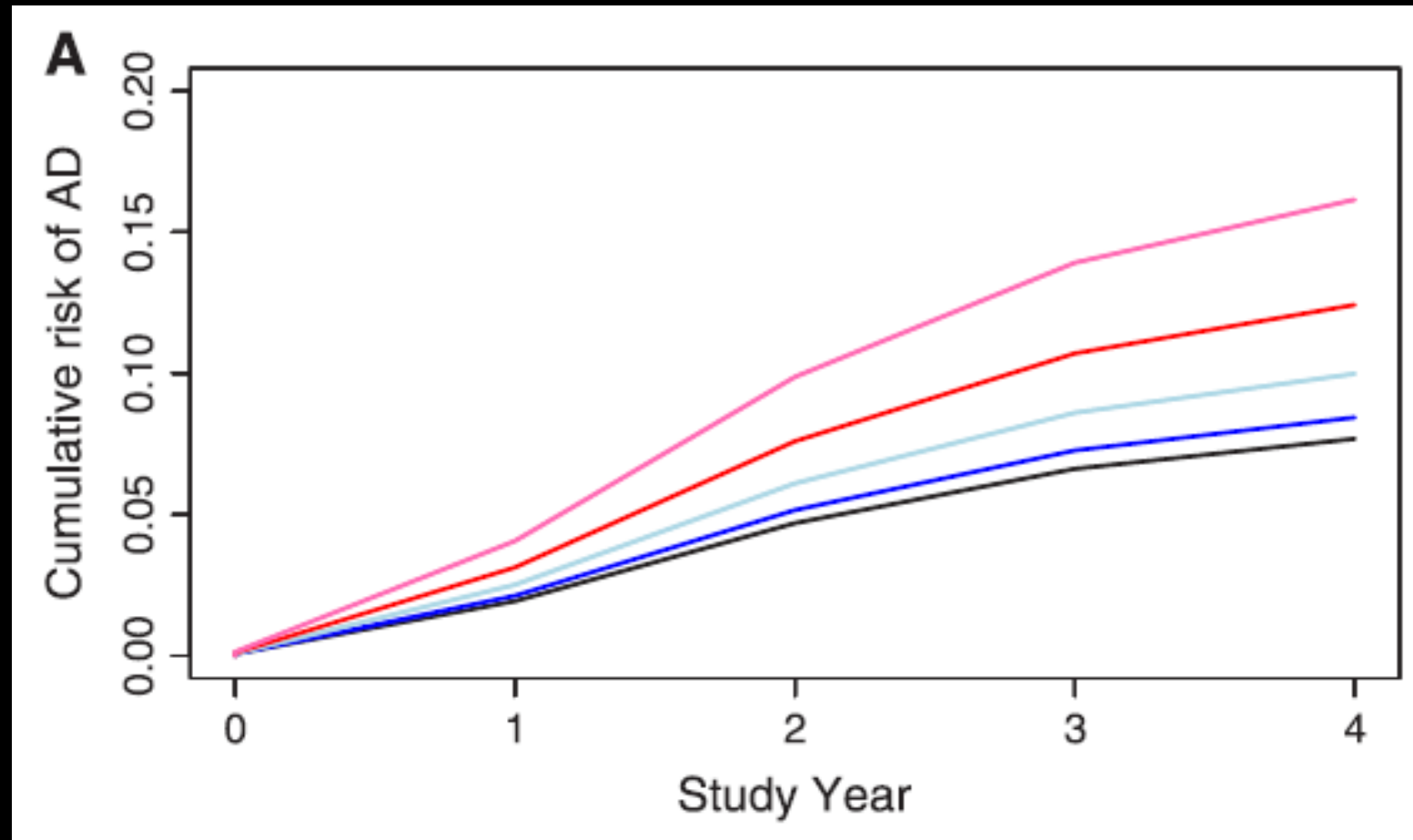
Cognitive Activity and Onset Age of Incident Alzheimer Disease Dementia

Late life cognitive activity, participants rate how often they participate in specific activities with information processing but with minimal physical, social, or economic barriers.



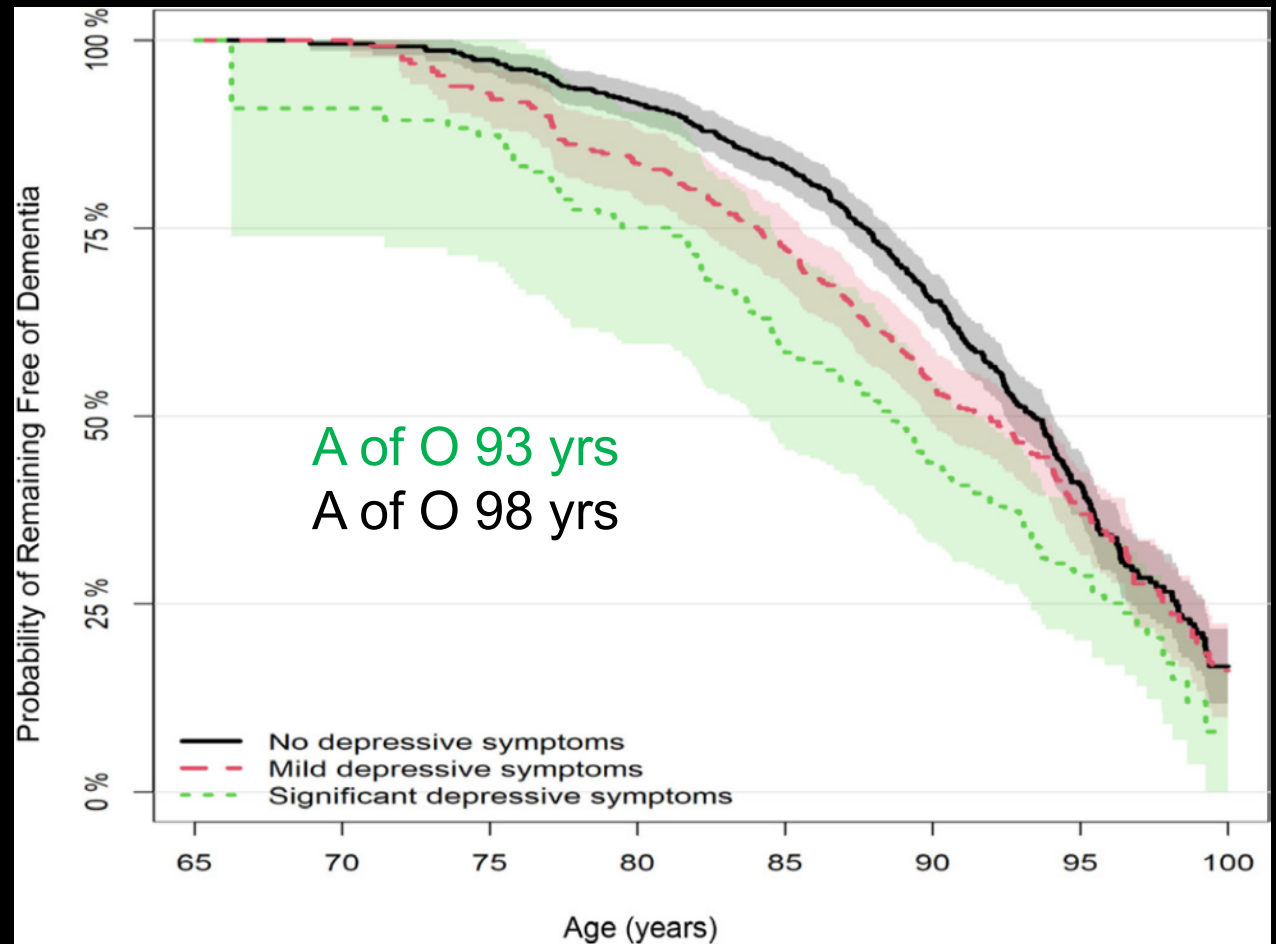
Harm Avoidance and Risk of Alzheimer's Disease

Harm avoidance is a trait associated with a tendency to avoid new situations and aversive stimuli



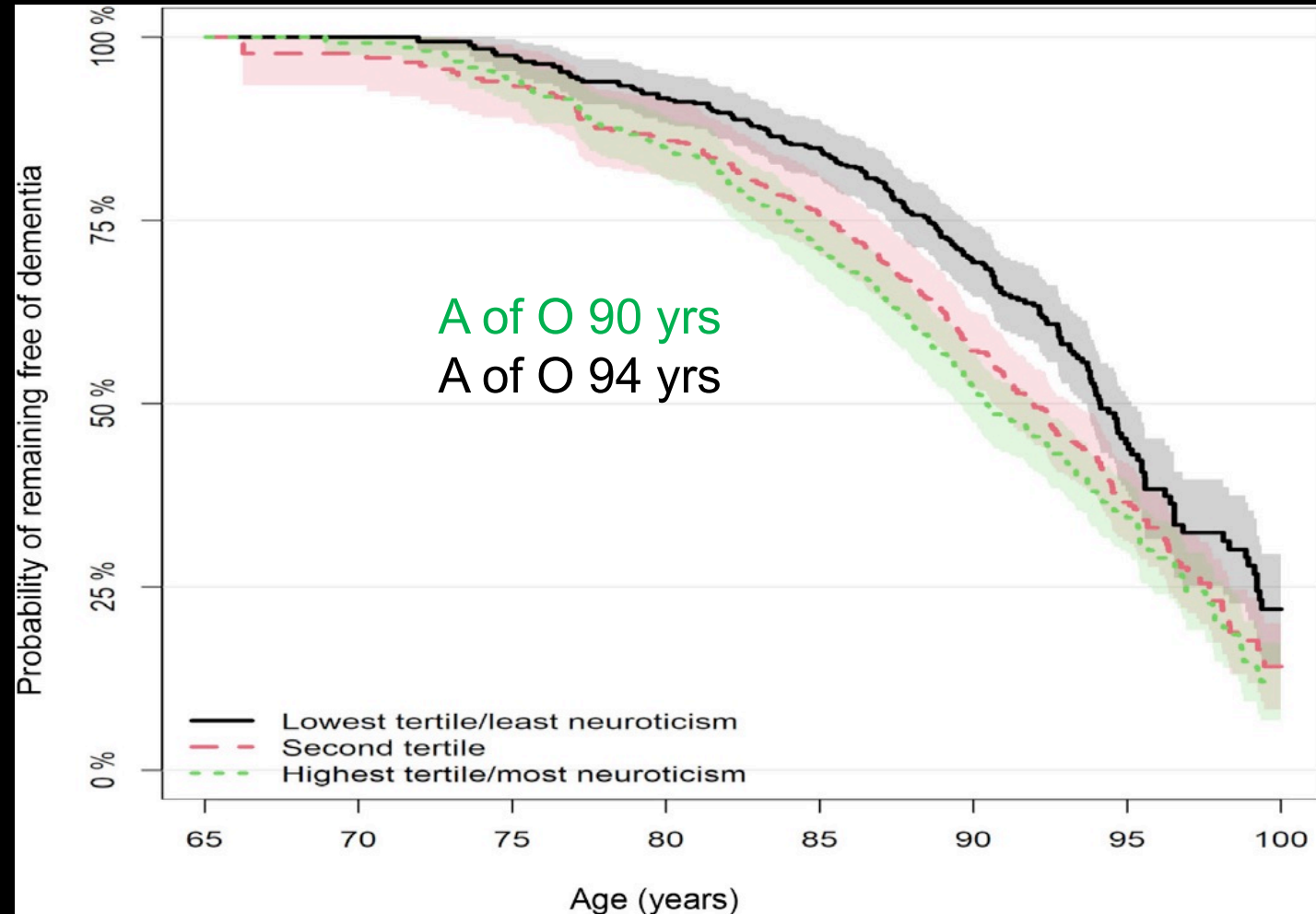
Modifiable psychosocial risk factors and delayed onset of dementia in older populations: analysis of two prospective US cohorts

Depressive symptoms are symptoms of depression, such as restless sleep, poor appetite, and feeling sad



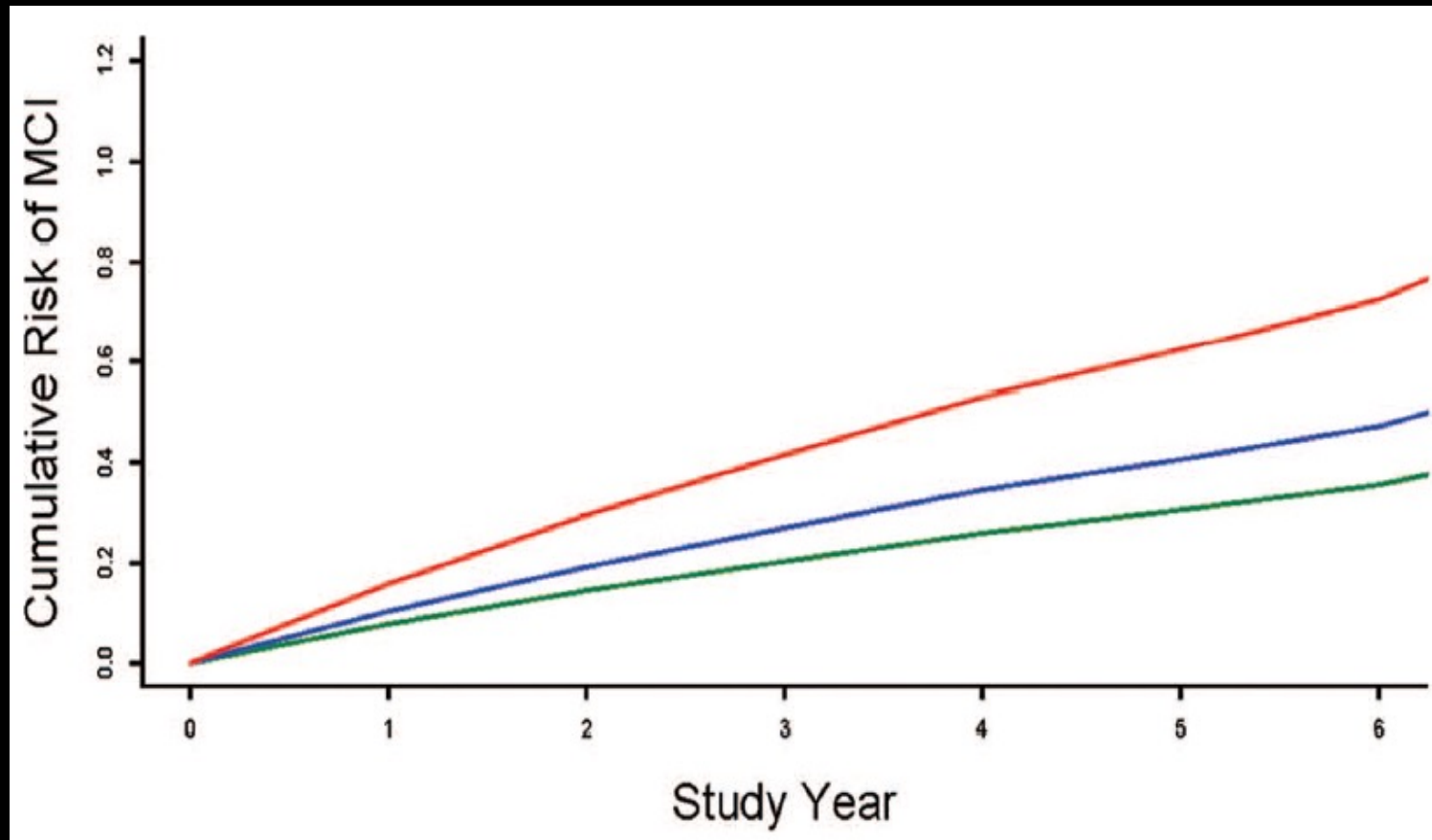
Modifiable psychosocial risk factors and delayed onset of dementia in older populations: analysis of two prospective US cohorts

Neuroticism (NEO) is the disposition to experience psychological distress or proneness to psychological distress. It's one of the 'Big Five' personality traits.



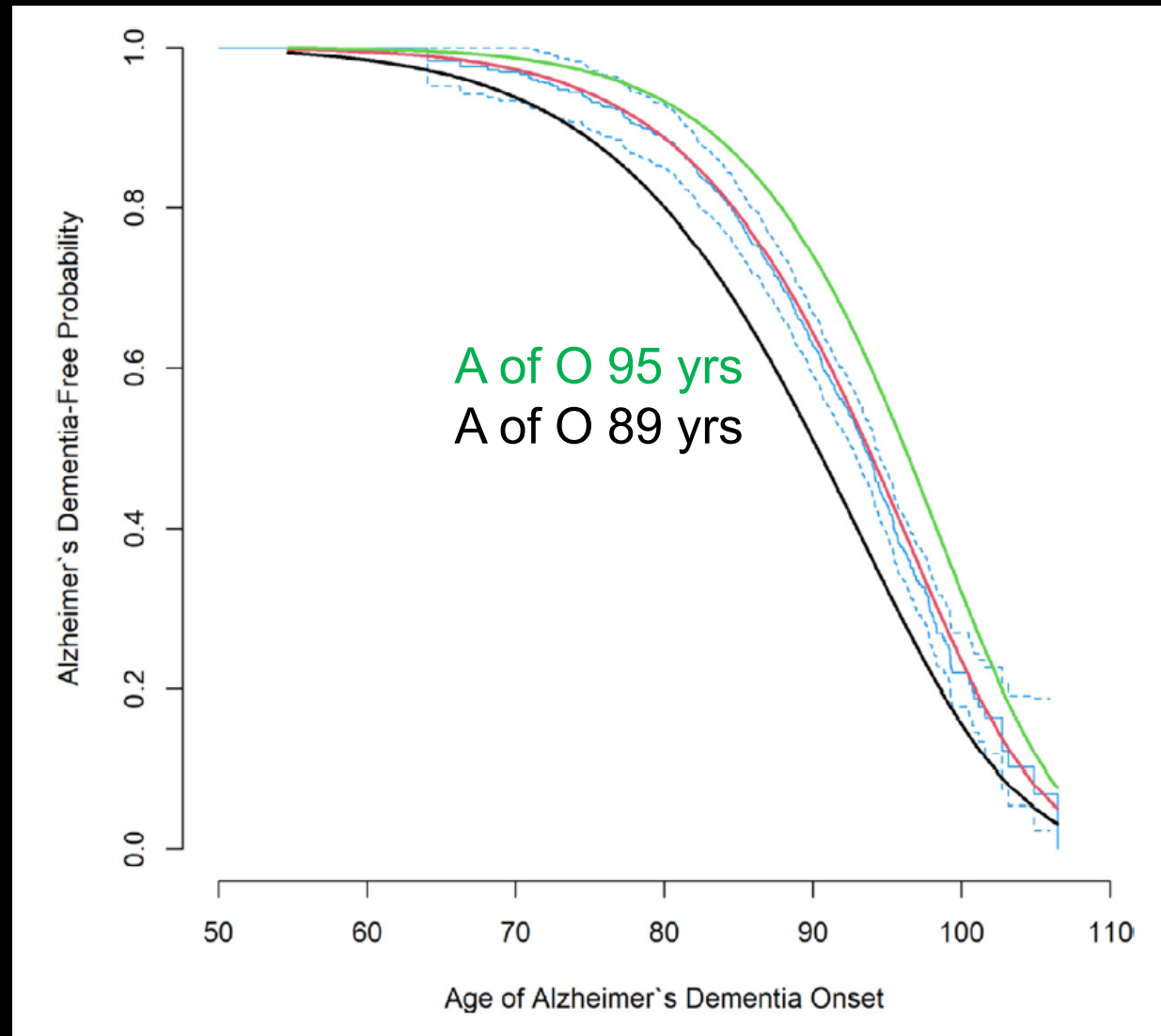
Negative Social Interactions and Risk of Mild Cognitive Impairment in Old Age

Negative social interactions, neglect or rejection by others, others' unwanted intrusion or advice, failure by others to provide help, unsympathetic or insensitive behavior by others



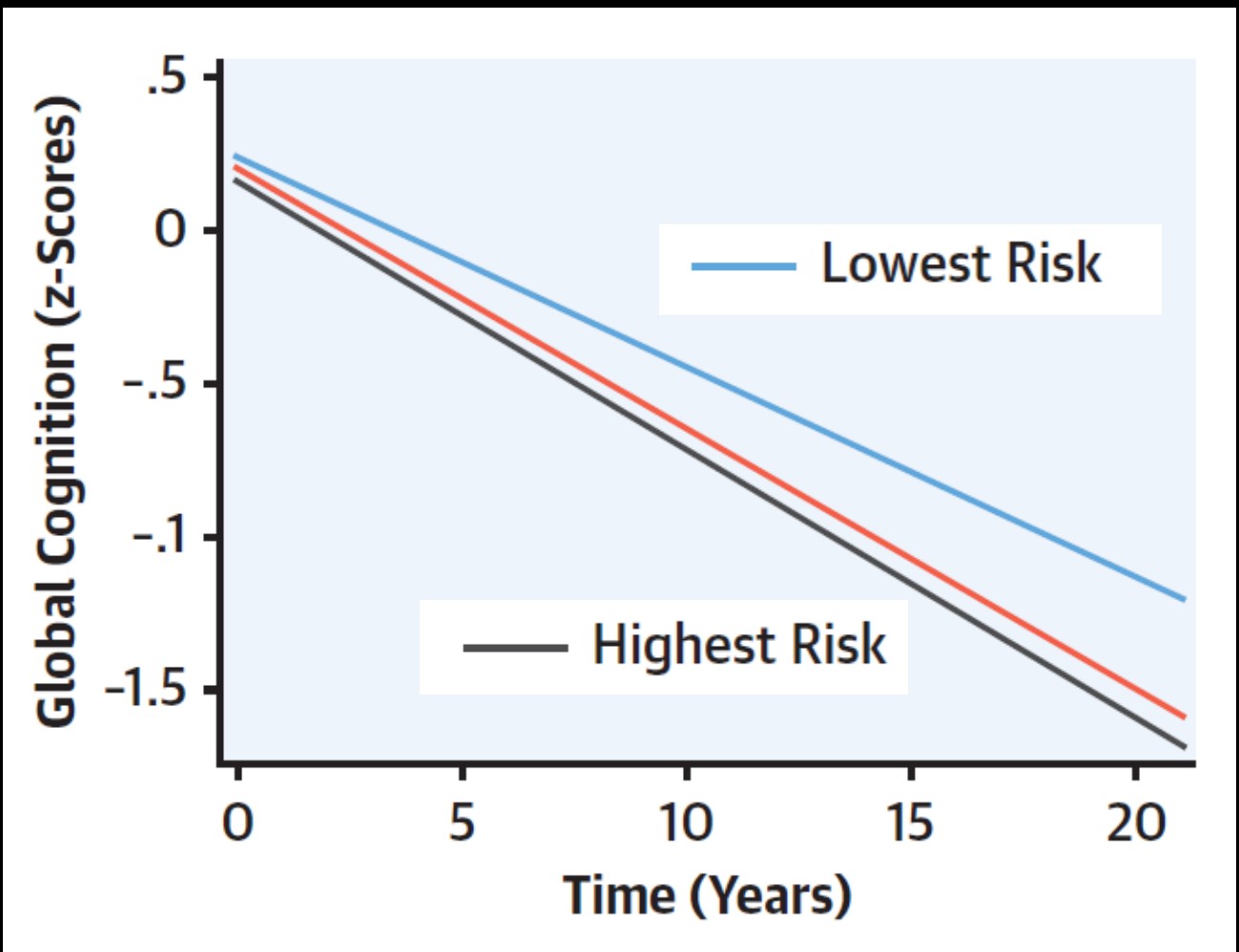
Purpose in Life May Delay Adverse Health Outcomes in Old Age

Purpose in Life is a dimension of Psychological Well-Being that refers to a sense of directionality and meaning to one's life.

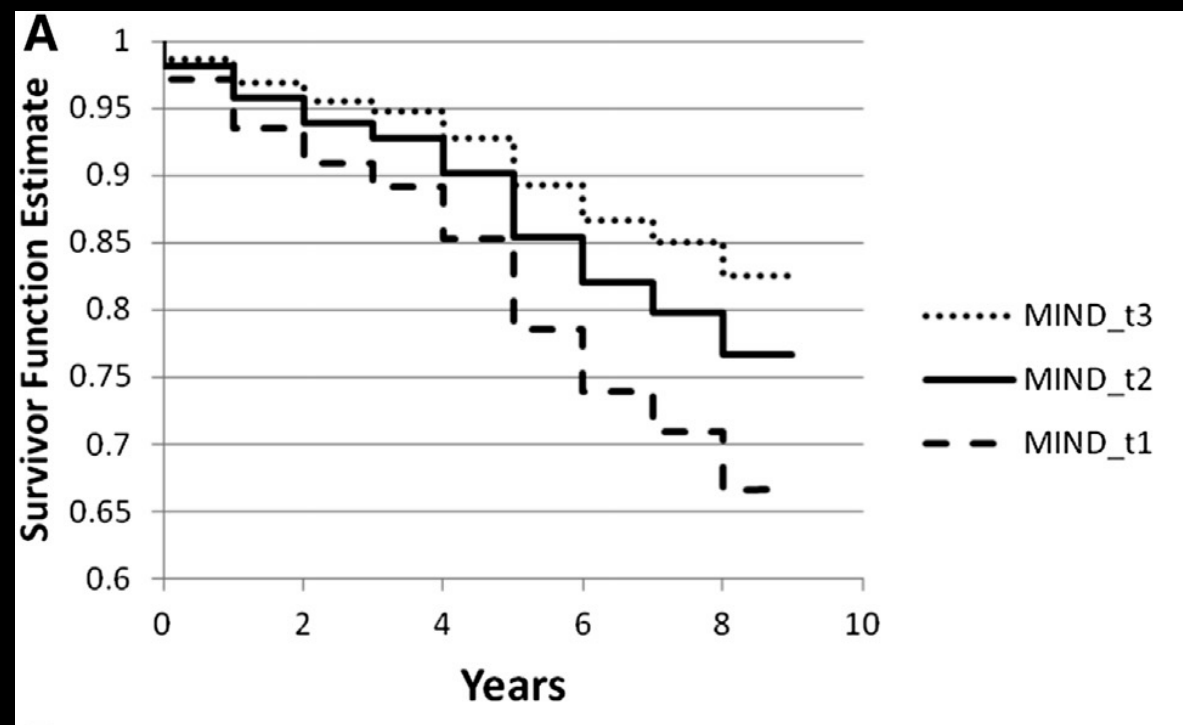


Associations Between Cardiovascular Risk, Structural Brain Changes, and Cognitive Decline

Framingham general cardiovascular risk score. Based on age, sex, smoking, systolic blood pressure, medication for hypertension, total cholesterol, HDL cholesterol, and diabetes



MIND diet associated with reduced incidence of Alzheimer's disease



MIND

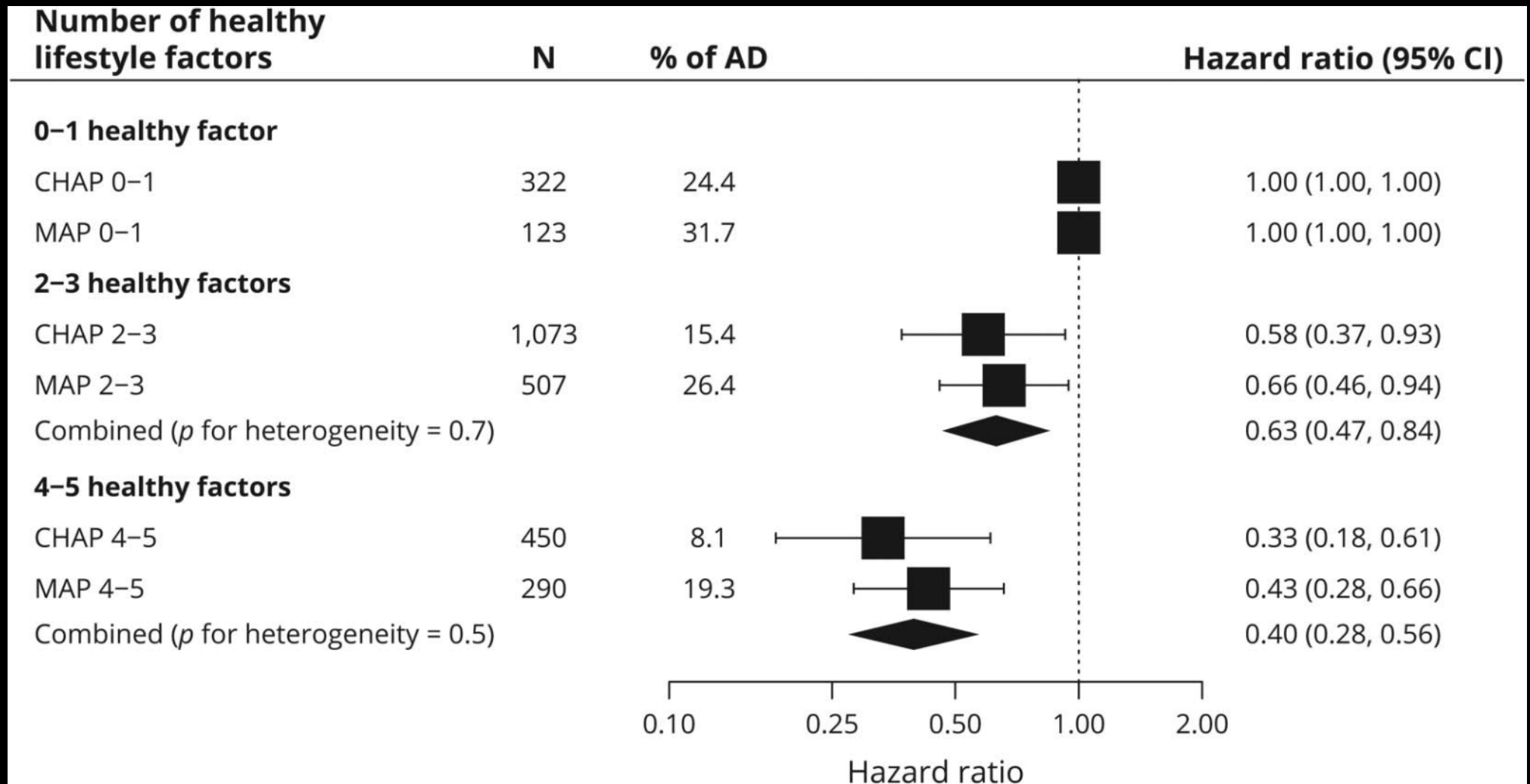
MIND components	Max score
Whole Grains $\geq 3/d$	1
Green Leafy $\geq 6/wk$	1
Other Vegetables $\geq 1/d$	1
Berries $\geq 2/wk$	1
Red Meats and products $< 4/wk$	1
Fish $\geq 1/wk$	1
Poultry $\geq 2/wk$	1
Beans $> 3/wk$	1
Nuts $\geq 5/wk$	1
Fast/fried food $< 1/wk$	1
Olive Oil primary oil	1
Butter, margarine $< 1 T/d$	1
Cheese $< 1/wk$	1
Pastries, sweets $< 5/wk$	1
Alcohol/wine 1/d	1
Total MIND Score	15

Healthy lifestyle and the risk of Alzheimer dementia

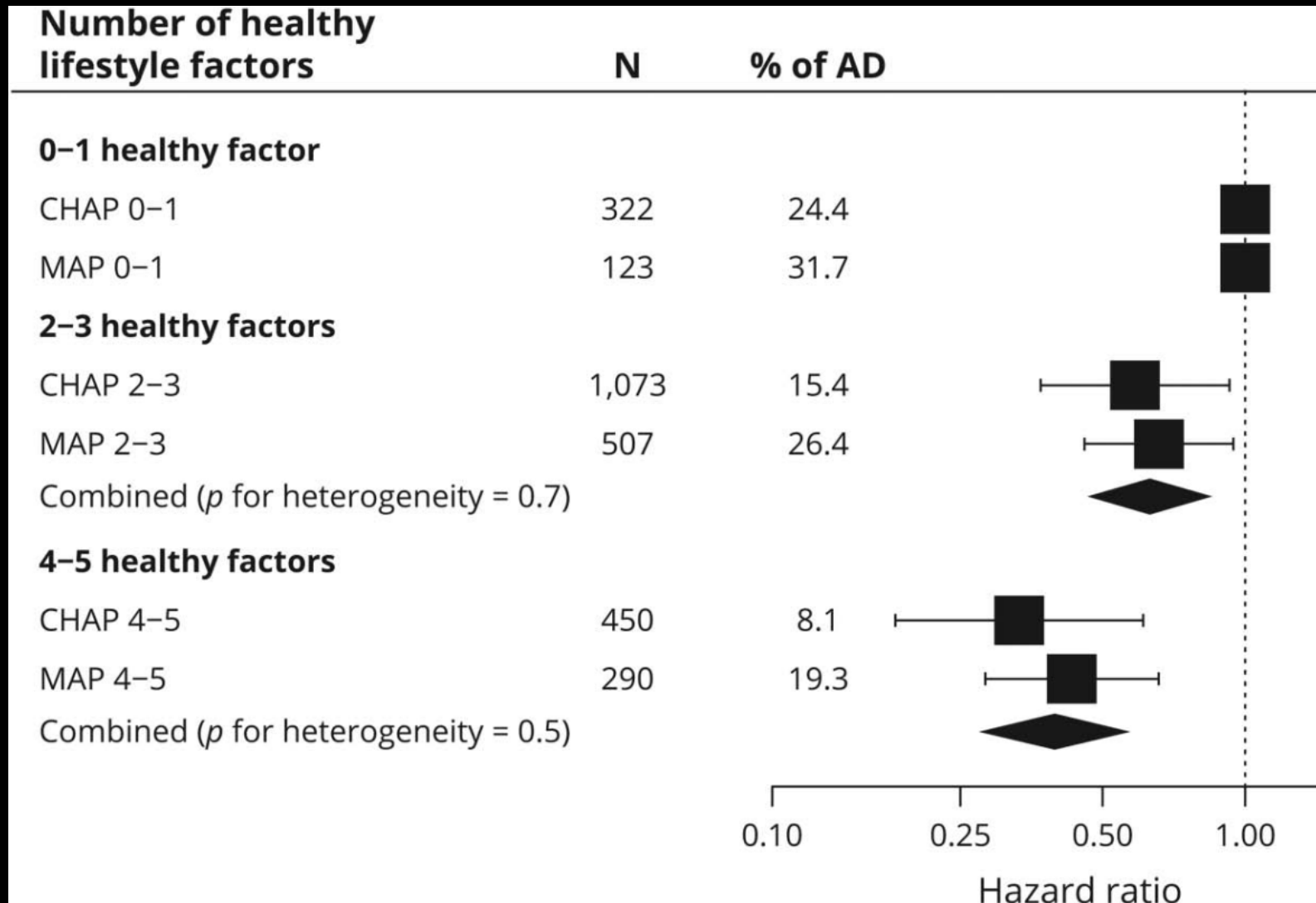
Table 1 Definition of healthy lifestyle factors

Lifestyle factor	Low-risk category	High-risk category
MIND diet	Upper 2/5ths (highest 40%) of the score distribution	Bottom 3/5ths (lower 60%) of the score distribution
Physical activity	≥150 min/wk in moderated or vigorous activities	<150 min/wk or sedentary
Cognitive activity	Upper 2/5ths (highest 40%) of the distribution	Bottom 3/5ths (lower 60%) of the distribution
Smoking	Never or former smoker	Current
Alcohol intake	Women ≥1–<15 g/d, men ≥1–<30 g/d	Nondrinkers or women ≥15 and men ≥30 g/d

Healthy lifestyle and the risk of Alzheimer dementia

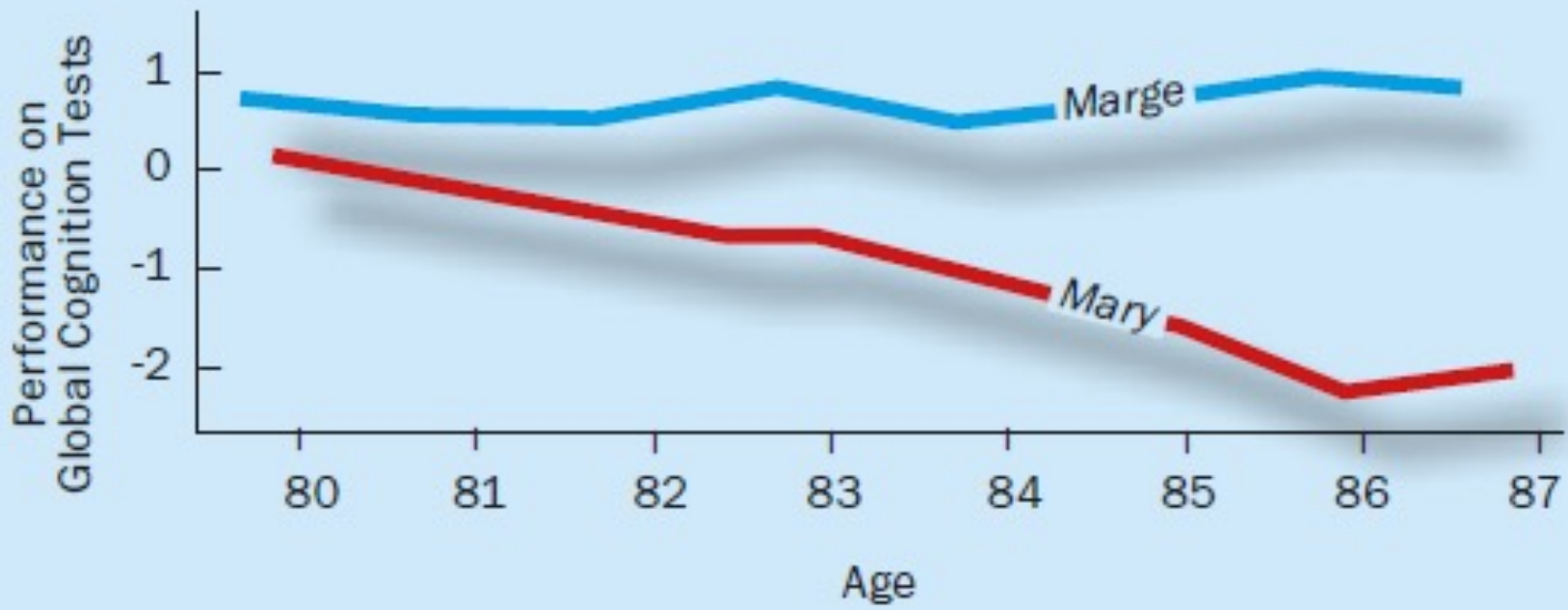


Healthy lifestyle and the risk of Alzheimer dementia



BANKING AGAINST ALZHEIMER'S

Tracking Cognitive Change



BANKING AGAINST ALZHEIMER'S

BUILDING A BETTER BRAIN AS WE AGE

1. Pick your parents well! Make sure you get good genes, a good education, a second language and music lessons. Avoid emotional neglect.
2. Engage in regular cognitive and physical activity.
3. Strengthen and maintain social ties.
4. Get out and explore new things.
5. Chillax and be happy.
6. Avoid people who are downers, especially close family members!
7. Be conscientious and diligent.
8. Spend time engaged in activities that are meaningful and goal-directed.
9. Be heart-healthy: what's good for the heart is good for the brain.
10. Eat a MIND diet, with fresh fruit and vegetables and fish.
11. (For *This Is Spinal Tap* fans, our list goes to 11.) Be lucky!

Start early –
you can't pick
your parents,
but you can pick
your activities



Reducing Your Risk of Alzheimer's Dementia: Building a Better Brain as We Age

