

Linking Childhood/Adolescent Social Exposures to Later Life Cognitive Health

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Manly Lab, Spring 2018

Brickman Lab, Spring 2018



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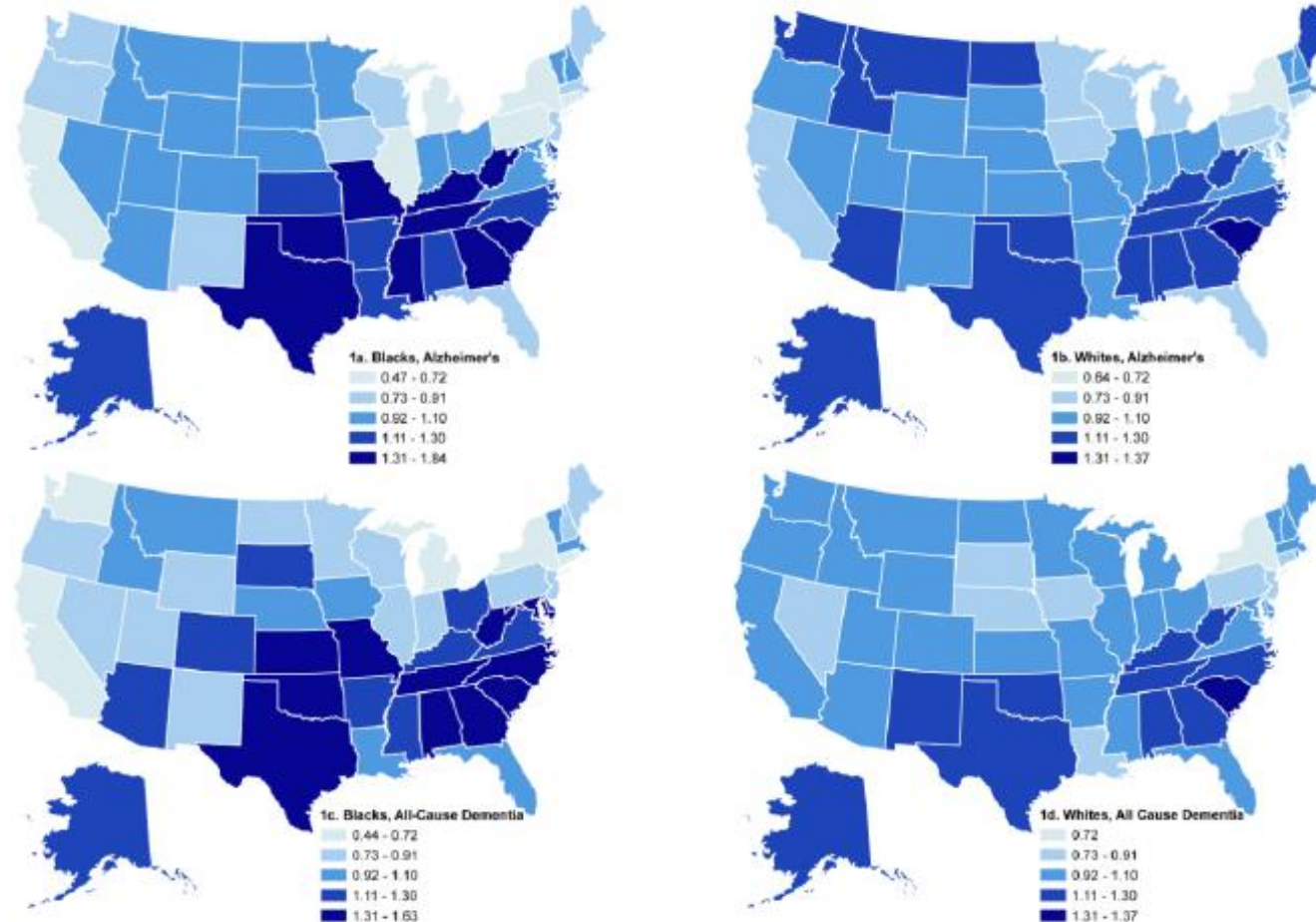
- NIA R01AG16206, R01AG028786, RF1AG056164 (PI: Manly)
- NIA RF1AG054070 (PIs: Manly/Brickman)
- NIA RF1AG058067 (PIs: Brickman/Manly)
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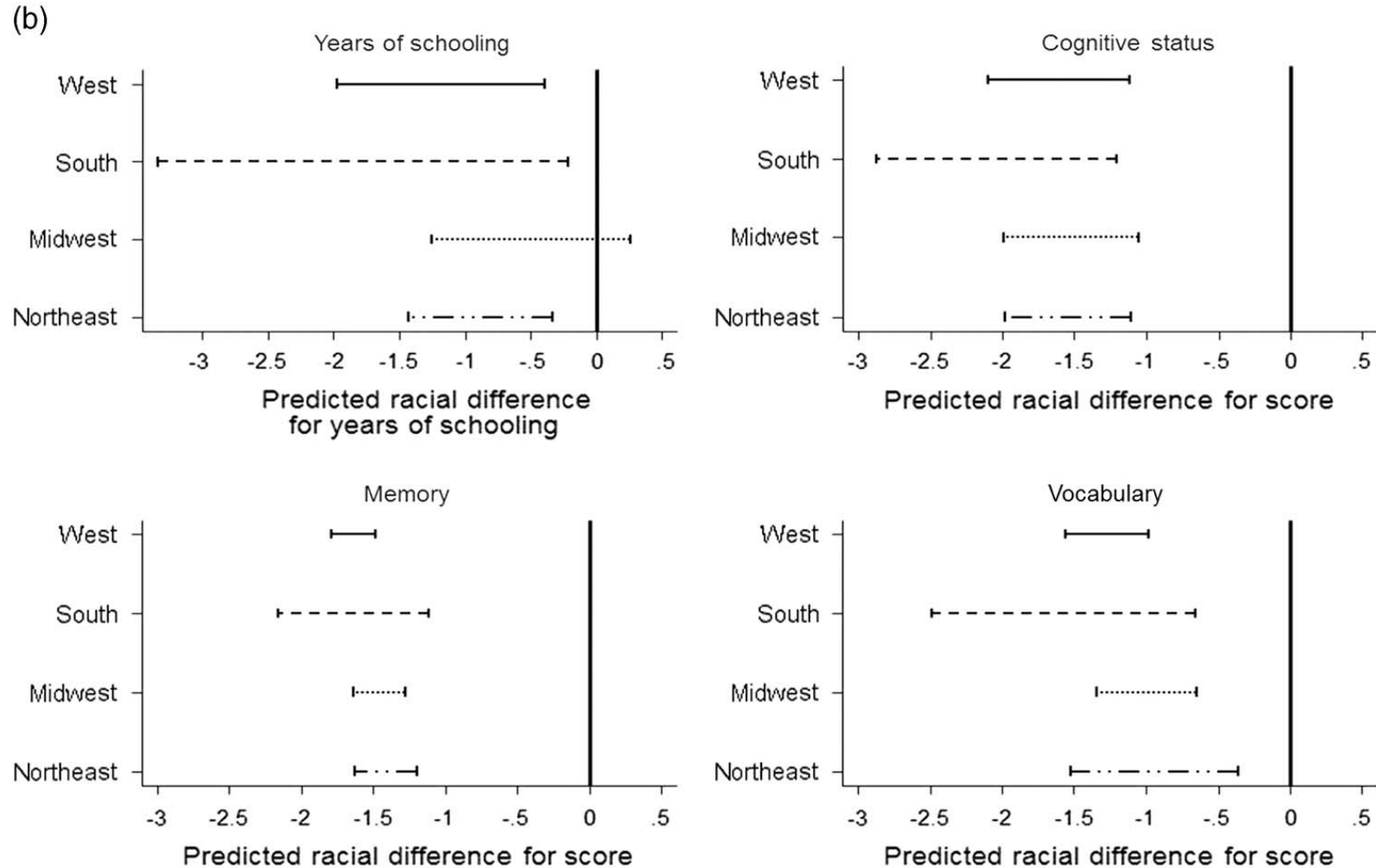
Alzheimer's Disease and All-cause Dementia Mortality by Race and Place of Birth



Odds ratios for Alzheimer's or all-cause dementia-related mortality in 2000, by race and state of birth, compared to the national average, based on empirical Bayes (shrinkage) random effect estimates from logistic models, US born blacks and whites ages 65–89.

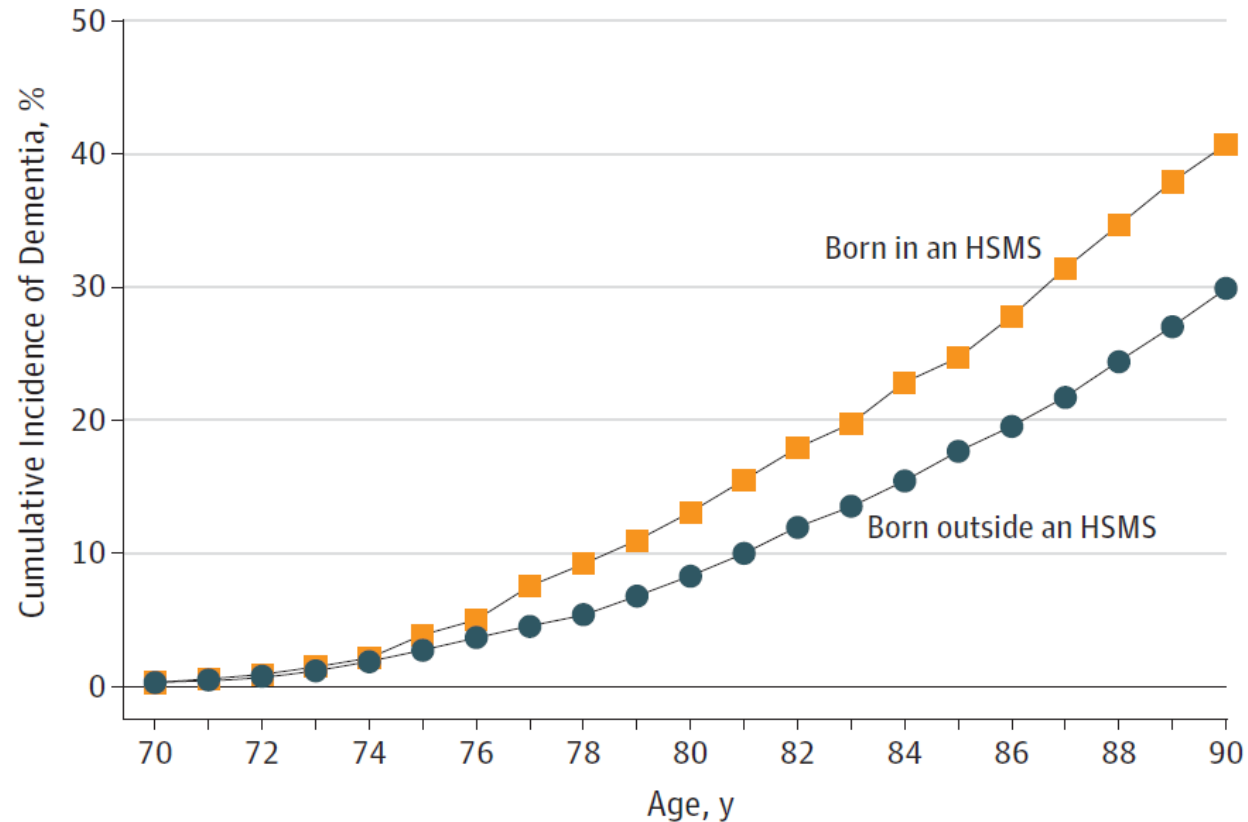
Glymour et al., *Alzheimer Dis Assoc Disord* 2011

Racial disparities by US region of primary school education in HRS



Place of birth and dementia risk among Kaiser Northern CA participants

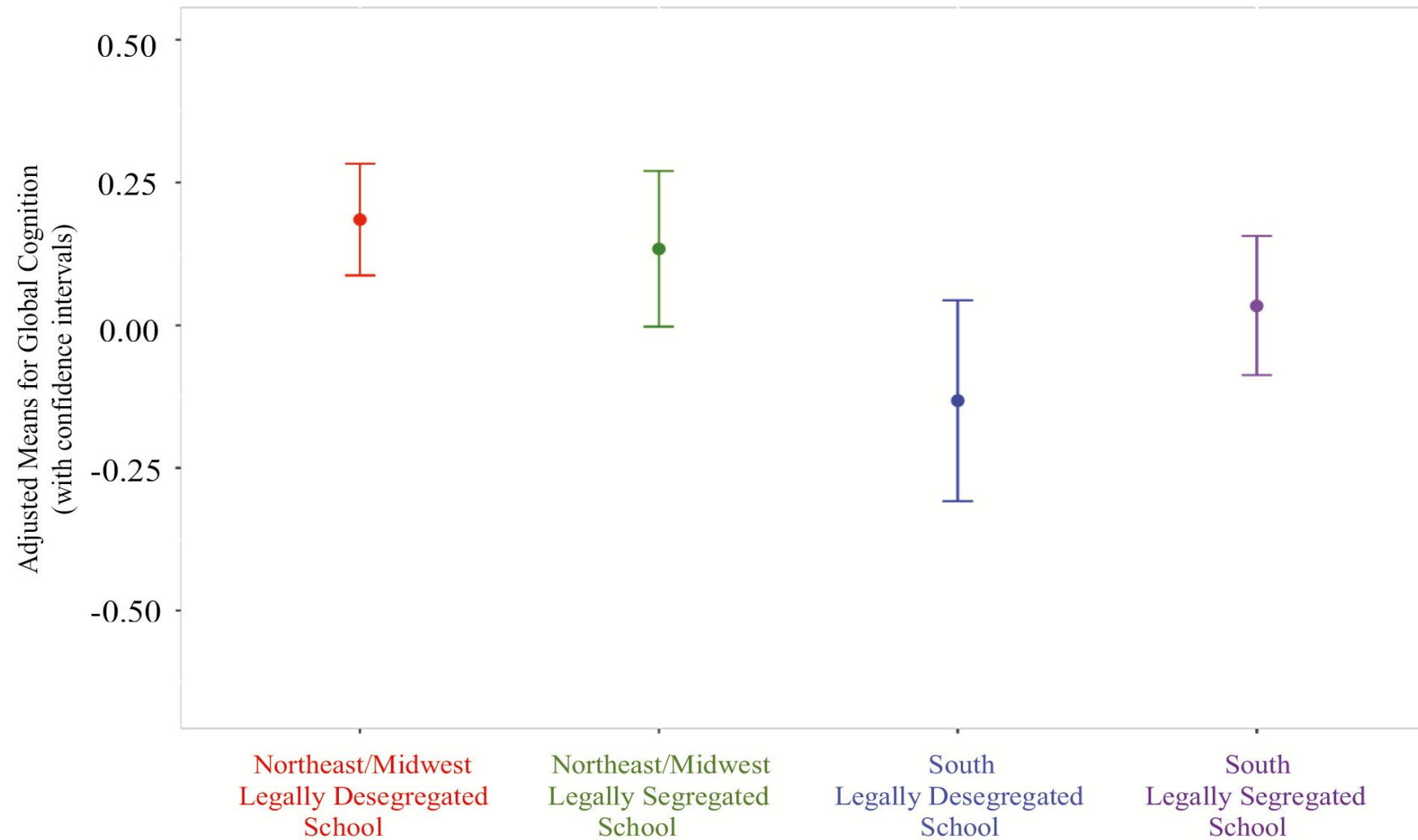
Figure. Cumulative Incidence Dementia Adjusted for Death Rates by Birth Place



High stroke mortality states: top quintiles of stroke mortality rates (i.e., states with >83 stroke deaths per 100 000 people older than 35 years) Alabama, Alaska, Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee, South Carolina, and West Virginia.

All participants had been in Northern California for 23+ years (since 1973)

Global cognition, early-life residence, and schooling at age 12



UK Policy Change Increased Executive Functioning in Late Life

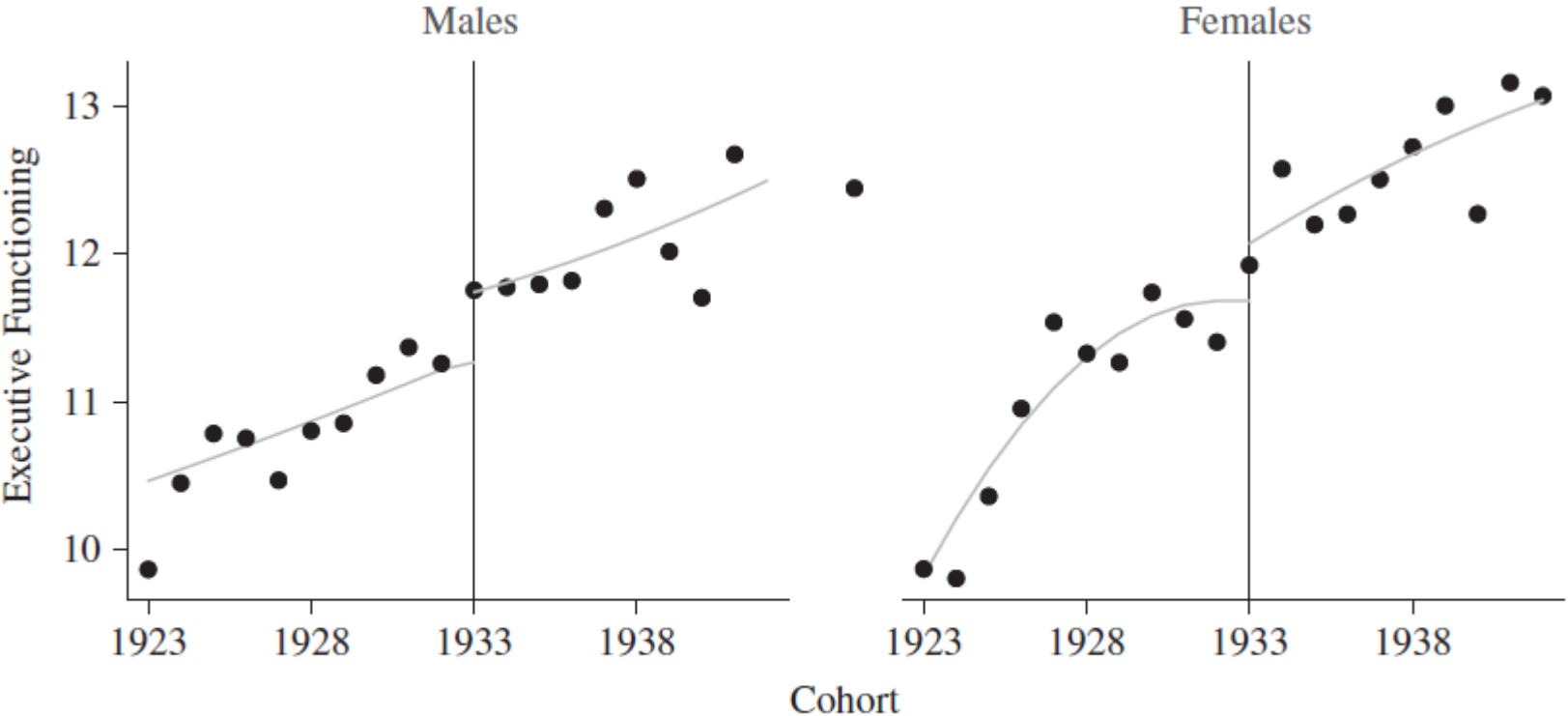


Fig. 9. *Effect of 1947 Reform on Executive Functioning (Conditional on Leaving Before 16)*

From Banks and Mazzona, 2012

Natural Experiments: IV Estimates for Education

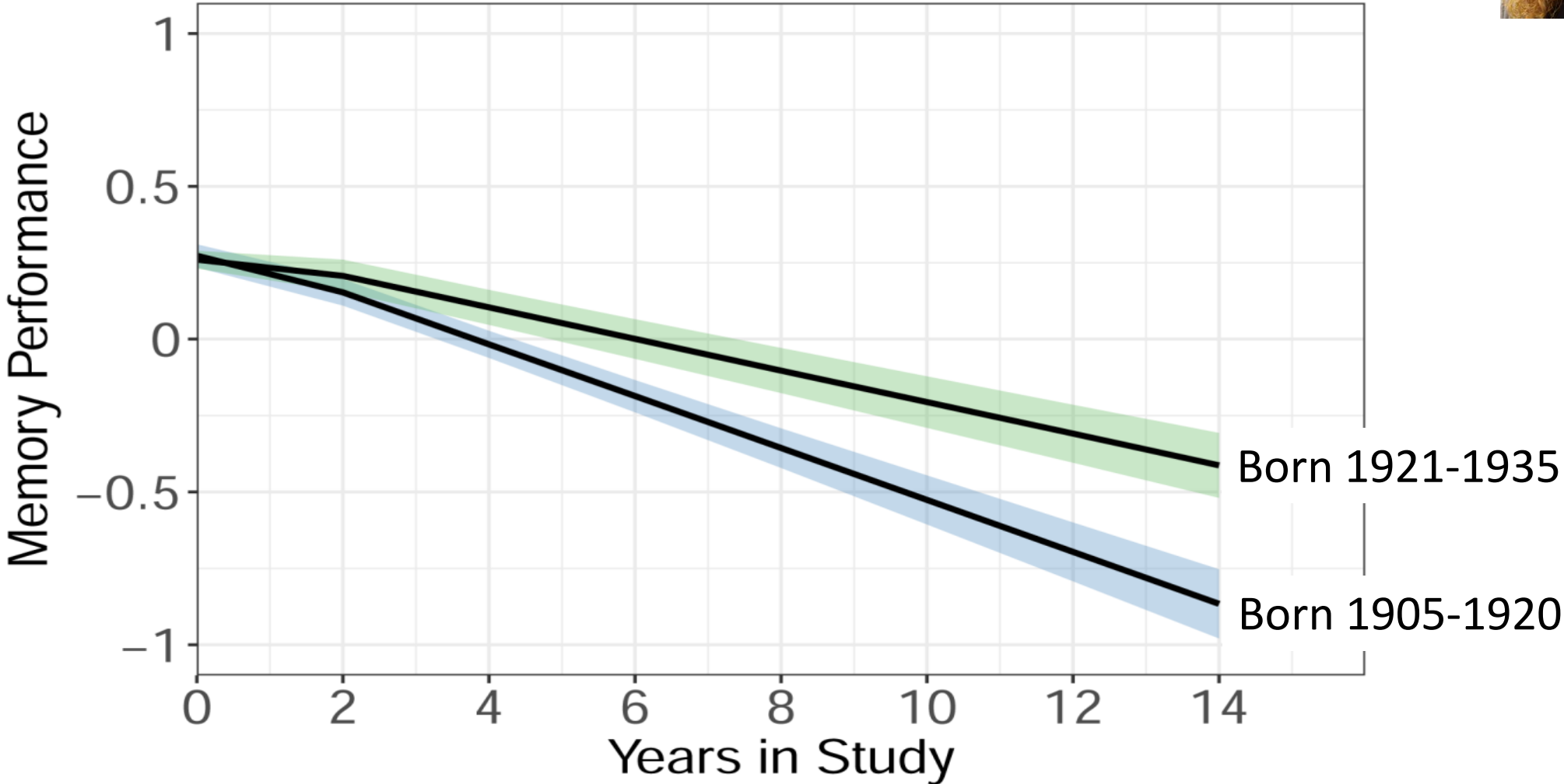
HRS through 2002, n=10,964

Estimated effect of 1 year ed'n on cognitive test scores

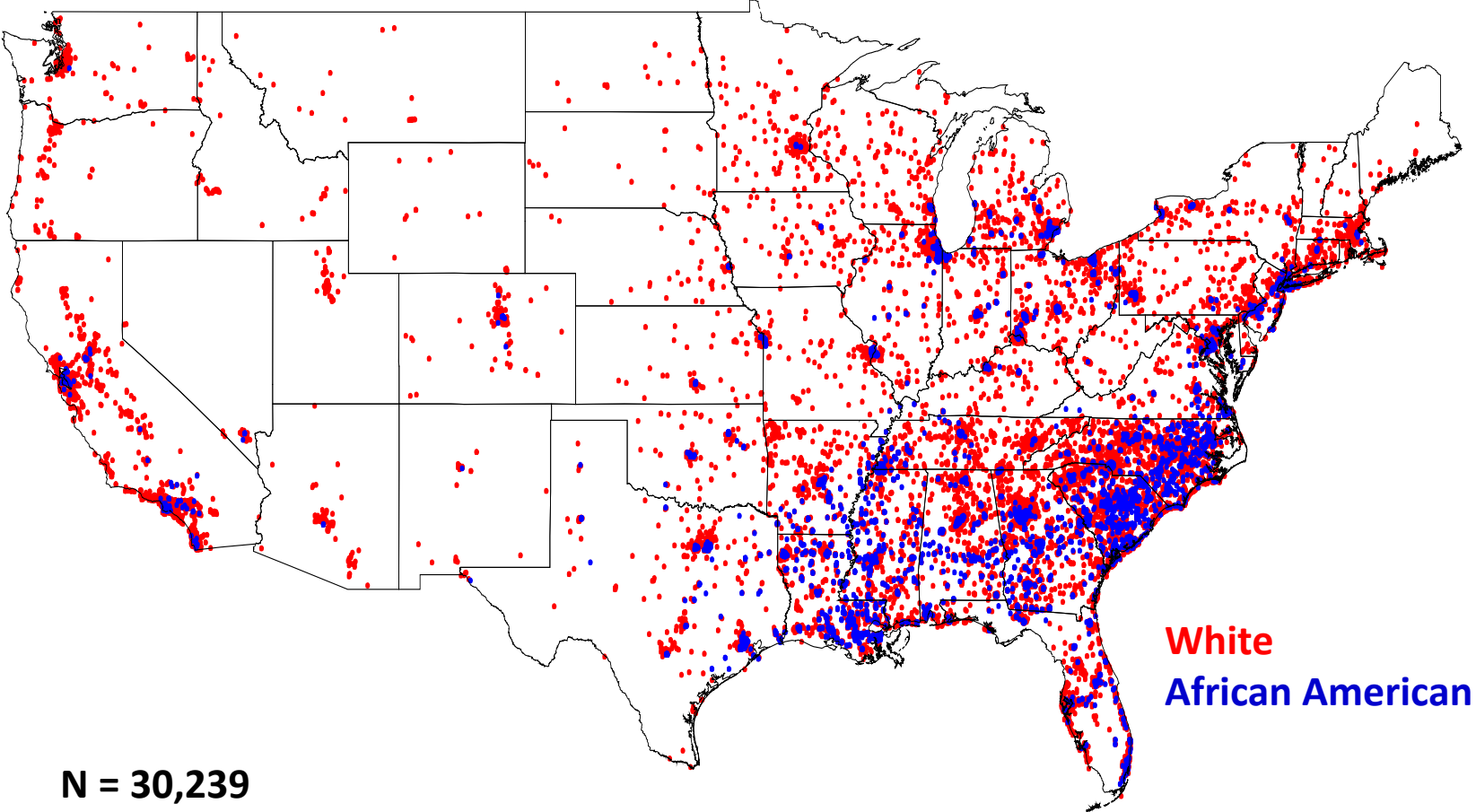
Model covariates	Memory		Cognition	
	β_{IV}	95% CI [^]	β_{IV}	95% CI [^]
1. Unadjusted	0.33	(0.27, 0.39)	0.19	(0.12, 0.26)
2. Birthyear, and sex	0.30	(0.14, 0.46)	0.34	(0.05, 0.63)
3. Model 2 + birth state	0.18	(0.02, 0.33)	0.03	(-0.22, 0.27)
4. Model 3 + state condns	0.34	(0.11, 0.57)	-0.06	(-0.37, 0.26)
5. OLS estimates	0.09	(0.08, 0.10)	0.15	(0.14, 0.16)

Less memory decline in older adults born later

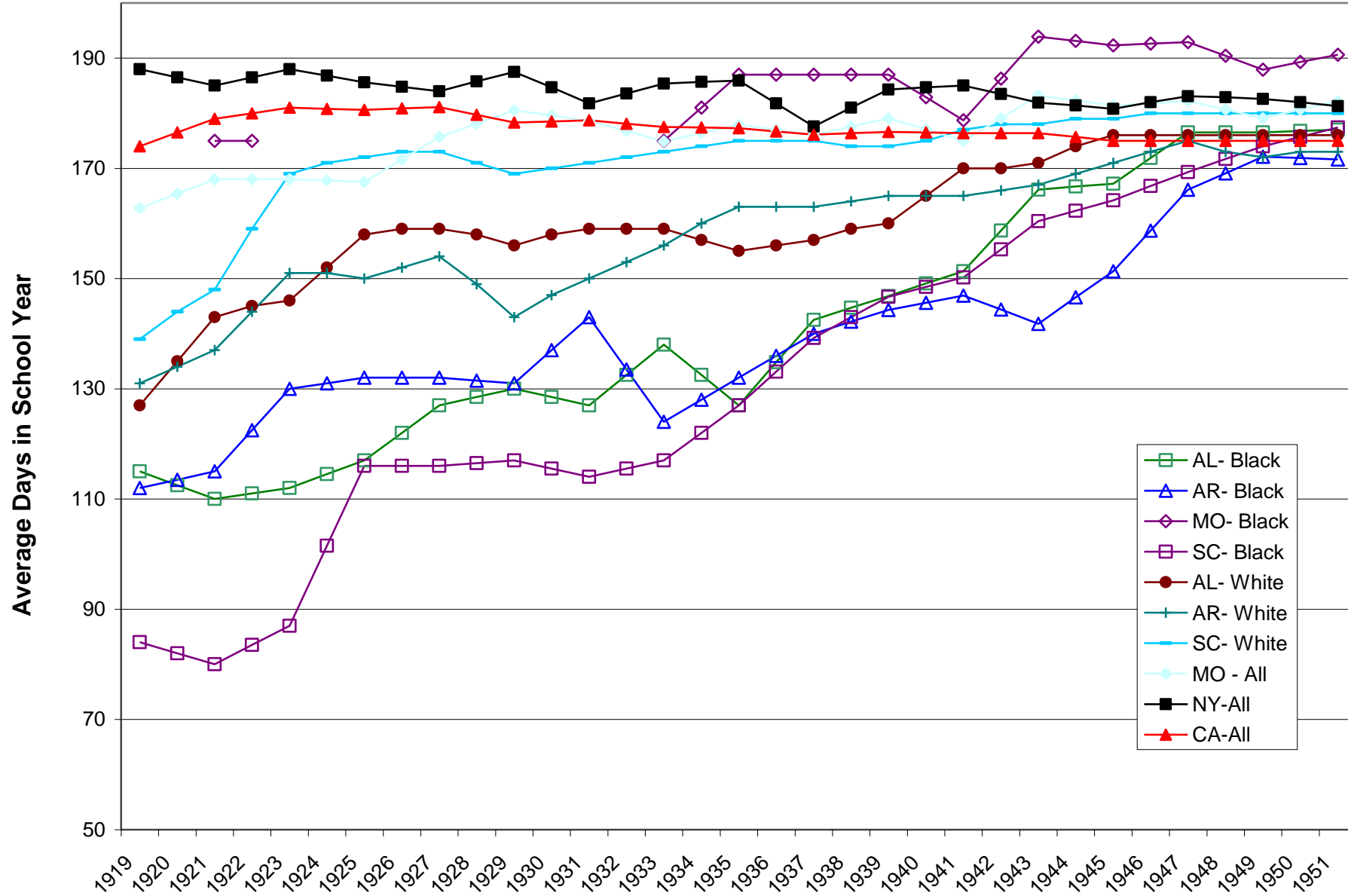
Vonk et al., 2019



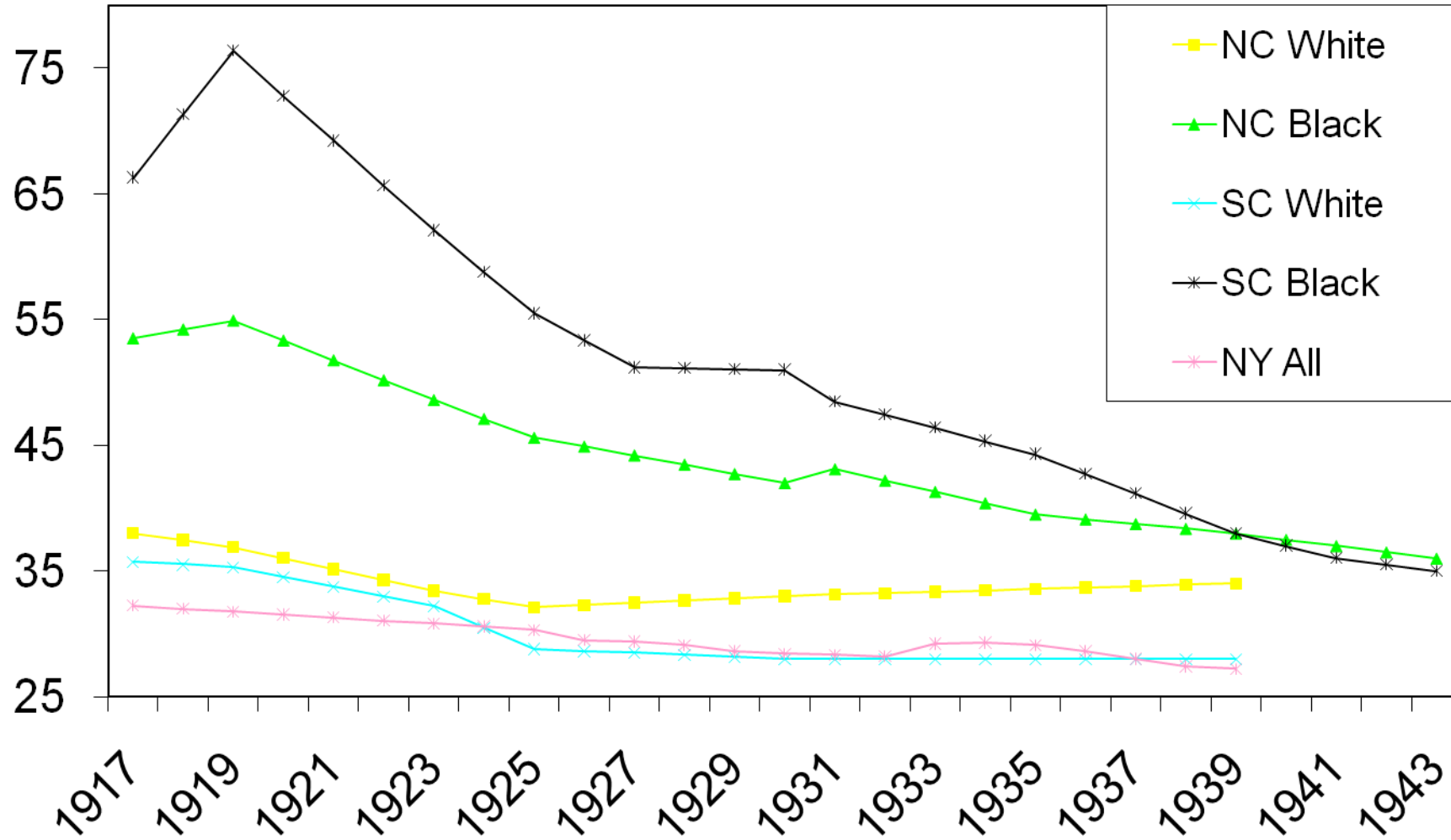
REGARDS Participants are more geographically diverse than other US cohorts of older adults



Length of School Year



Student Teacher Ratio



Historical investments in quality of schooling and cognition in later life

School quality did not protect Black men from cognitive impairment

Table 8. Odds Ratios for prediction of prevalent cognitive impairment (N=19,795)



Audrey Murchland



Maria Glymour

Variable	Model 1	Model 2	Model 3	Model 4
PPYEd	0.60 (0.58, 0.63)			
PPYED in BM		0.90 (0.80, 1.02)	0.89 (0.74, 1.07)	0.91 (0.76, 1.09)
PPYED in BW		0.79 (0.71, 0.88)	0.78 (0.66, 0.92)	0.80 (0.68, 0.95)
PPYED in WM		0.75 (0.65, 0.87)	0.71 (0.55, 0.91)	0.74 (0.57, 0.94)
PPYED in WW		0.73 (0.61, 0.86)	0.68 (0.53, 0.88)	0.71 (0.55, 0.92)

Model 3 = Model 2 + State Fixed Effects

Model 4 = Model 3 + Parents Education

Project Talent Medicare-linked dataset



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journal homepage: www.elsevier.com/locate/ssmph



Article

Investigating the early life determinants of Type-II diabetes using a project talent-medicare linked data-set



Elizabeth Mokyr Horner*, Kiersten Strombotne, Alison Huang, Susan Lapham

American Institutes for Research, United States

JAMA Network | **Open**



Original Investigation | Geriatrics

Adolescent Cognitive Aptitudes and Later-in-Life Alzheimer Disease and Related Disorders

Alison R. Huang, MPH; Kiersten L. Strombotne, PhD; Elizabeth Mokyr Horner, PhD; Susan J. Lapham, MS

JAMA Psychiatry | **Original Investigation**

Association Between High School Personality Phenotype and Dementia 54 Years Later in Results From a National US Sample

Benjamin P. Chapman, PhD, MPH, MS; Alison Huang, MS; Kelly Peters, PhD; Elizabeth Horner, PhD; Jennifer Manly, PhD; David A. Bennett, MD; Susan Lapham, MS

Summary

- Racially patterned early life social exposures are linked to cognitive function and dementia risk in later life
- Cohorts that can reveal mechanisms
 - National
 - Multiple recruitment waves (secular changes)
 - Oversample populations that are burdened with health disparities
 - Detailed educational and residential history
 - Longitudinal cognitive measures
 - Direct measurement of risk & resilience variables in early life
 - Measure lifecourse exposure to systemic racism
 - Population feasible biomarkers
- Highly selected samples are not useful for disparities research
 - *It does not matter how large the samples are!!!! (Keyes & Westreich, 2019)*
 - Provide clarity on limits of convenience (volunteer) samples (where target pop is unknown)
- Economic and social policy as health policy