New Findings from Wave V

Kathleen Mullan Harris
James E. Haar Distinguished Professor of Sociology
University of North Carolina at Chapel Hill

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Wave V Overall Goals

- Re-interview Add Health cohort members as they move through their 30s to collect social, environmental, behavioral, and biological data with which to track the emergence of chronic disease
- Build on the life course history of respondents by adding and refining early-life measures of their birth and childhood
- Bring these data together with existing longitudinal data to create a 40-year life course record to test hypotheses about developmental origins of health and disease

Key Design Changes to Wave V

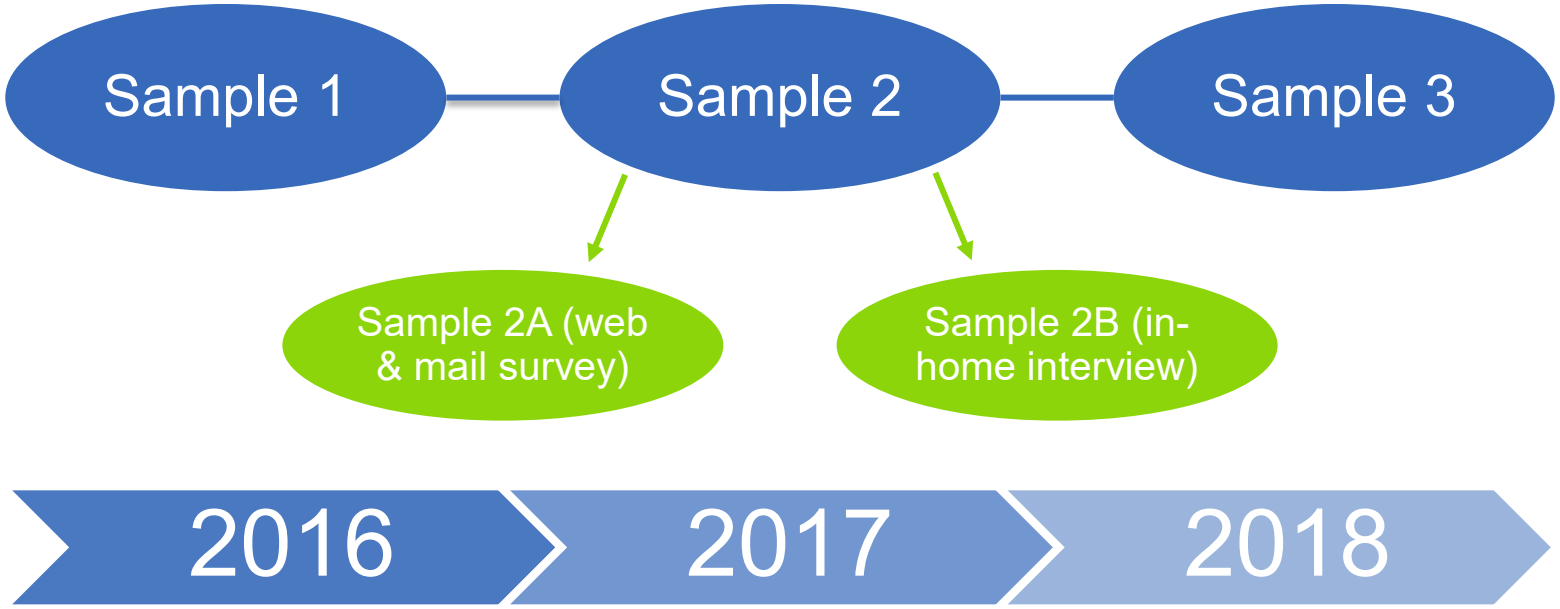
- **National Longitudinal Study of Adolescent *to Adult* Health**
- Shifted from in-person interview to mixed mode interview using web, mail, phone and in-person
- Questionnaire length reduce from 90 to 50 mins
- Shifted from intensive 1-year data collection period to continuous interviewing over 3 years
- Biological data collected in separate home visit by biological data subcontractor (venous blood draw)
- Sample non-respondents

Wave V Interview 2016–2018

- Wave I respondents aged 33–43 years
- Collect the following data:
  - Survey data
  - Biological data
  - Geographic locations
  - State of birth to obtain birth records
  - Identify all deaths for death surveillance
- Conduct fieldwork continuously on 3 nationally-representative samples (Samples 1, 2 and 3) during 2016–2018

Wave V Sampling Structure

All samples are nationally representative



Wave V Data Collection Results

- Overall sample size of 12,300 (effective response rate of 72%)
- 66% biomarker consent rate
- Biomarker sample size 5,381

Survey Mode	Percent
Web	77.5
Paper	3.3
In-person	17.1
Phone	2.2
Total	100

Wave V: Biological data

- **Repeat measures of biomarkers:**
  - Anthropometrics (height, weight, waist)
  - Cardiovascular (blood pressure, pulse)
  - Whole blood assays of:
    - Inflammation and immune function (CRP)
    - Metabolic (lipids, HbA1c, glucose)
- **New biomarkers of renal function:**
    - Creatinine
    - Cystatin C
- **Medications inventory**
- **Venous blood for ancillary studies**
  - Gene expression data
  - Methylation (epigenetic) data

Wave V Data Release

- Full Wave V survey data (N=12,300)
  - Mixed-mode survey data
  - All data and samples combined with sampling weights
- Wave V biomarker data (N=5,381)
  - Includes biomarker weights
- Contextual data released
  - Longitudinal measures from Census, RUCA, Climate Atlas, FBI crime reports (tract, county, state)
  - County-level health and mobility data
  - ACA Medicaid Expansion data (state)
- Public use data (N=4,196) available at ICPSR

Genomic Data

- **GWAS**
  - saliva collected at Wave IV (2008)
  - N~10,000 (additional 1550 coming)
  - Data available on dbGaP (Accession#: phs001367.v1.p1)
- **Gene expression**
  - PAXgene samples collected at Wave V (2016-18)
  - N~4,500
- **Methylation**
  - Venous blood Wave V (2016-18)
  - N~4,500
- **Microbiome**
  - Currently in the field

Illustrative Wave V Findings

Descriptive Data (Weighted Percentages)

- 50.3% male, 49.6% female (sex assigned at birth)
- Mean age: 38 (range 33 – 43)
- Completed education:
  - HS or less: 22.0%
  - Some college: 41.4%
  - College or more: 36.6%
- Marital status
  - Never married: 27.5%
  - Married: 55.9%
  - Widowed/divorced/separated: 16.5%

Add Health: a pioneer in the measurement of race/ethnicity

- Unique among national surveys:
  - Repeated race measures across waves
  - Variety of different measurement modes and perspectives (self reports, interviewer observations, ancestry from genomic data)
- History of innovation
  - Multiple race option beginning in 1994-95
  - “Best race” follow-up to restore mutually exclusive (race and/or Hispanic origin) classification
  - Wave V used combined question that asked about race and Hispanic origin

Wave V (web)[b]

1. What is your race or ethnic origin? Mark one or more boxes.

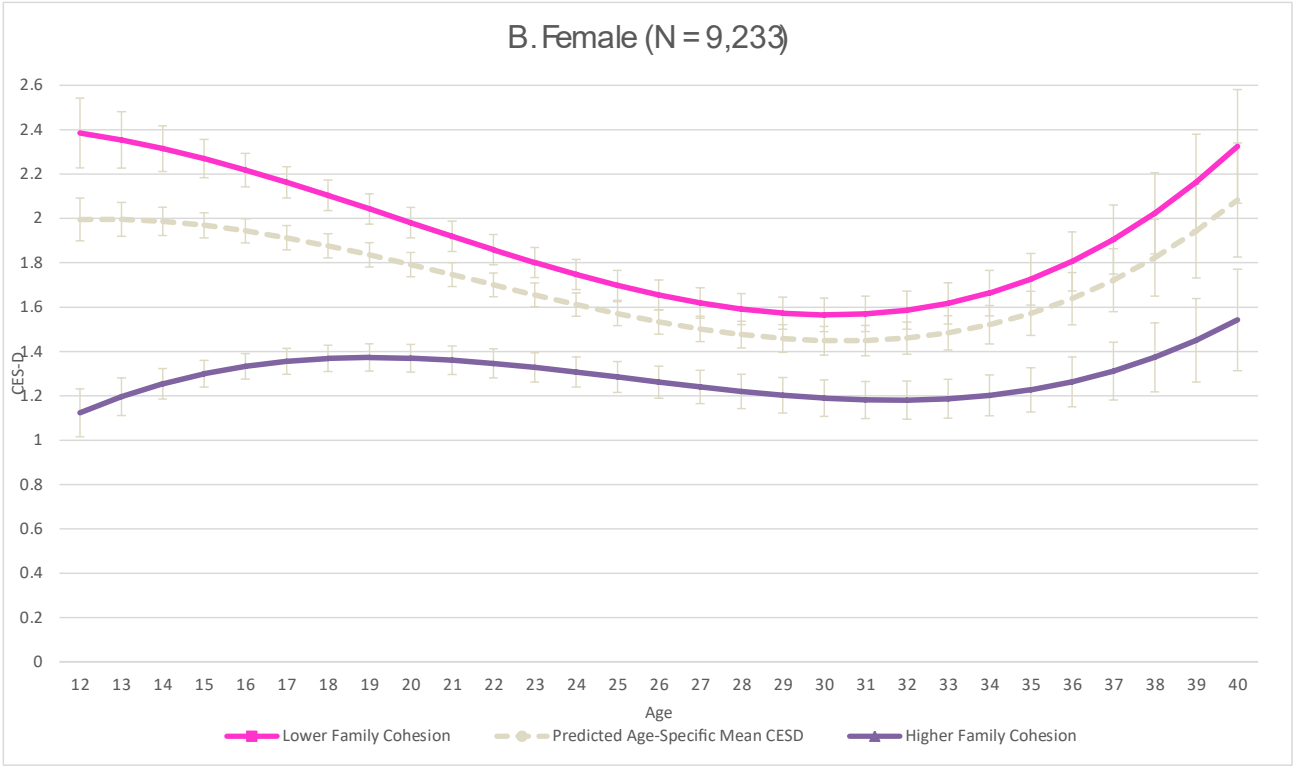
o White
o Black, African American
o Hispanic
o Asian
o Pacific Islander
o American Indian or Alaska Native
o Some other race or origin - Enter other race or origin

Race/Ethnicity Measures across Waves

Race/Ethnicity	Wave I	Wave III	Wave V	Wave I	Wave III
White	70.3%	74.0%	67.6%	65.9%*	66.1%*
Black	14.5%	15.1%	14.1%	14.3%	14.6%*
Am. Indian or AK Native	1.0%	2.1%	0.5%	0.5%	0.6%
Asian	3.6%	4.1%	3.2%	3.5%	3.8%*
Pacific Islander			0.3%		
Multiracial	4.1%	3.7%	3.3%	3.5%	3.4%
"Some Other Race"	6.3%	---	0.2%	0.8%*	---
Any Hispanic (1)	---	---	10.5%	11.6%*	11.5%*
Hispanic only (2)	---	---	*7.6%*	*5.6%**	*0.9%**
Hispanic + (other) race (3)	---	---	*3.0%*	*6.0%**	*10.6%**
N/A (4)	0.1%	1.0%	0.3%	0.0%	0.1%
Percent	100%	100%	100%	100%	100%
Weighted N (Sample N)	17,324,050 (10,220)				

* Differs from Wave V at p<0.05

Predicted Growth Curve of CES-D by Levels of Family Cohesion Across Ages 12-40

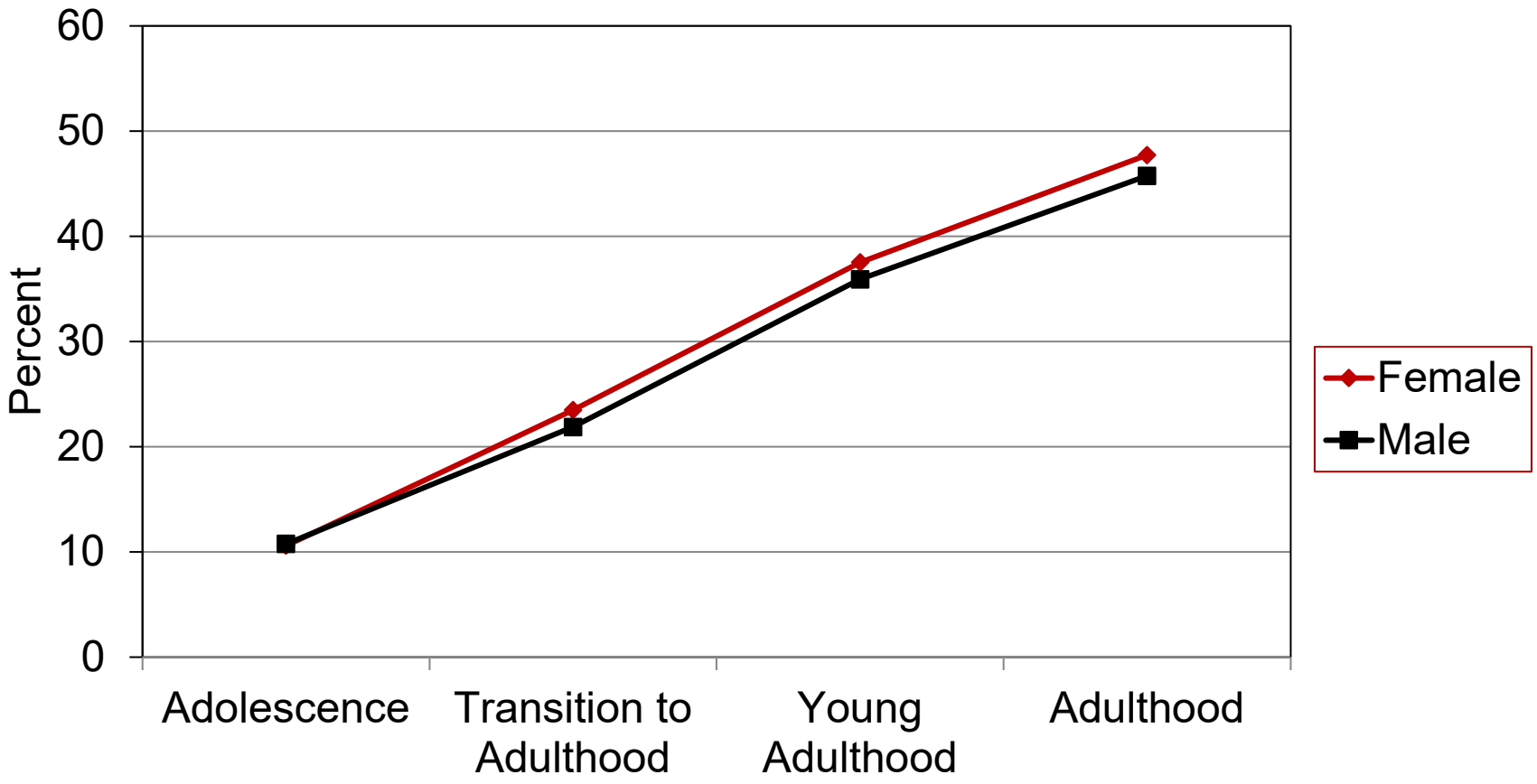


Notes: Estimated from PSW (propensity score weighting) conditional growth curve models for CES-D (Center for Epidemiologic Depression Scale). Results based on weighted models corrected for sample clustering.

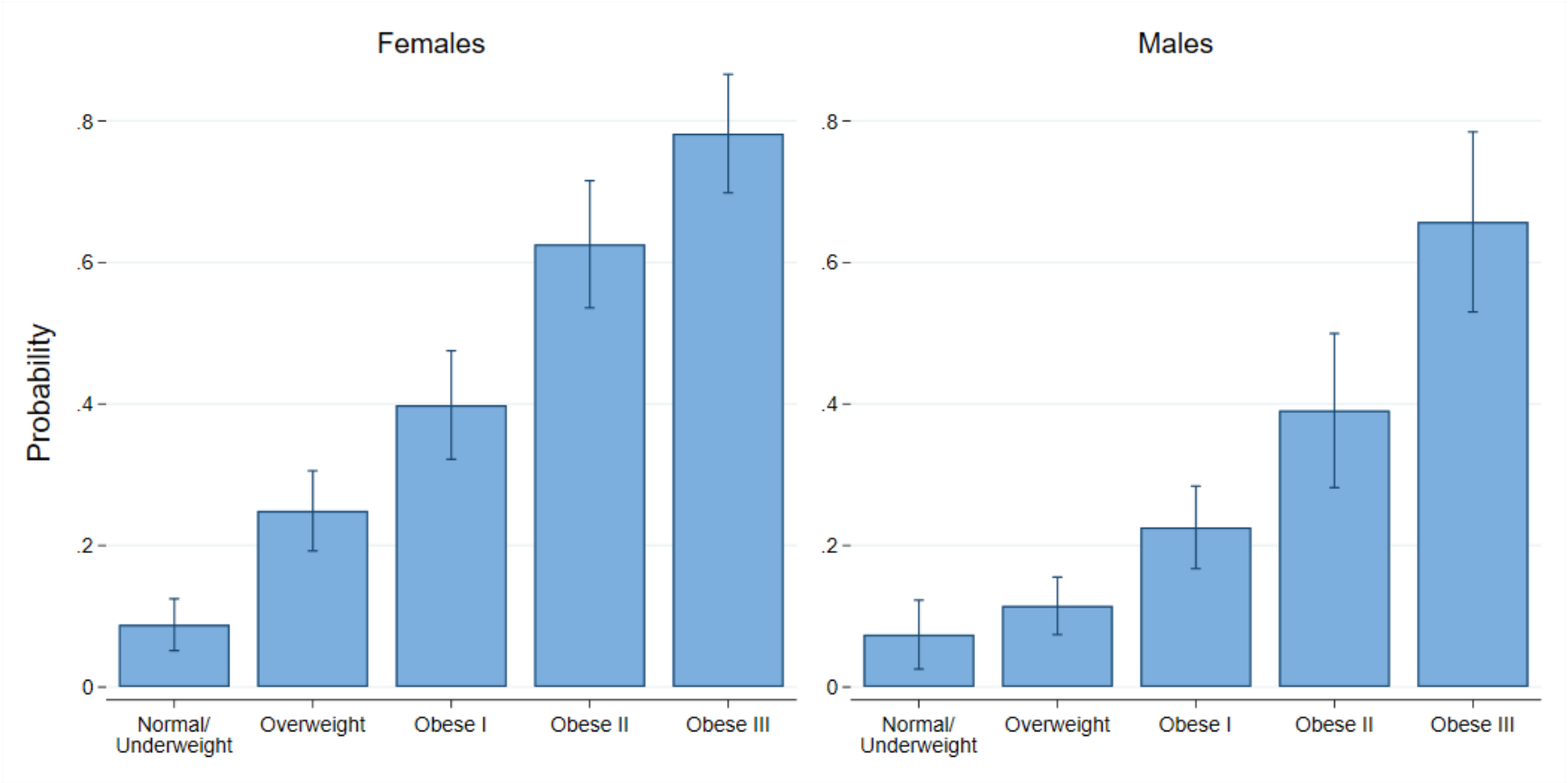
*CES-D by levels of family cohesion are not significantly different at the .05 level.

Chen, Ping and Kathleen Mullan Harris. 2019. “Association of positive family relationships with mental health trajectories from adolescence to midlife.” *JAMA Pediatrics* 173(12):e193336

Obesity from adolescence into adulthood

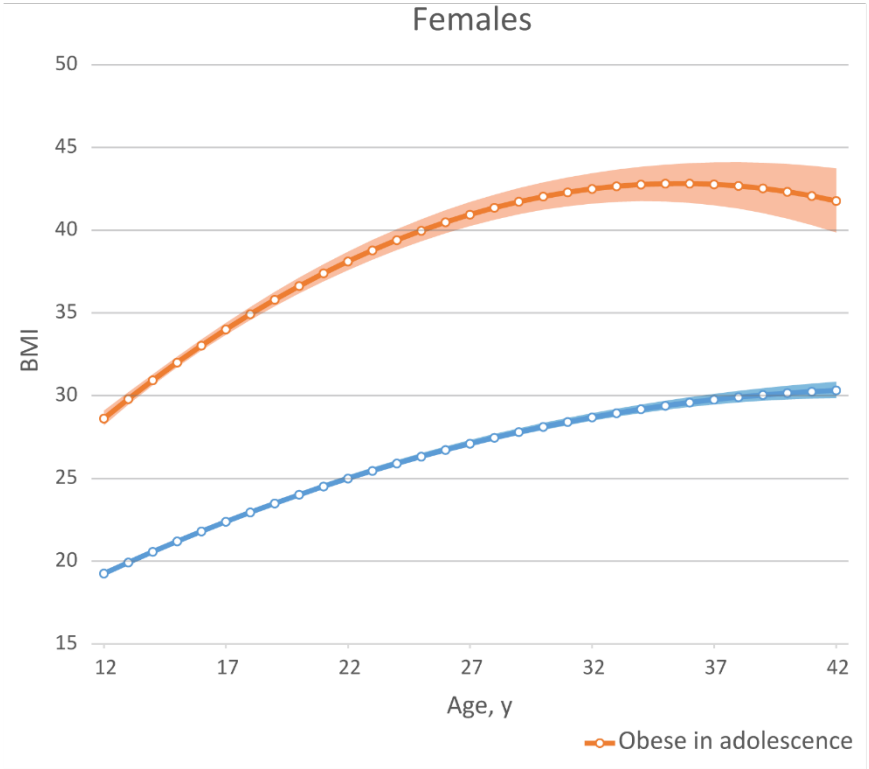


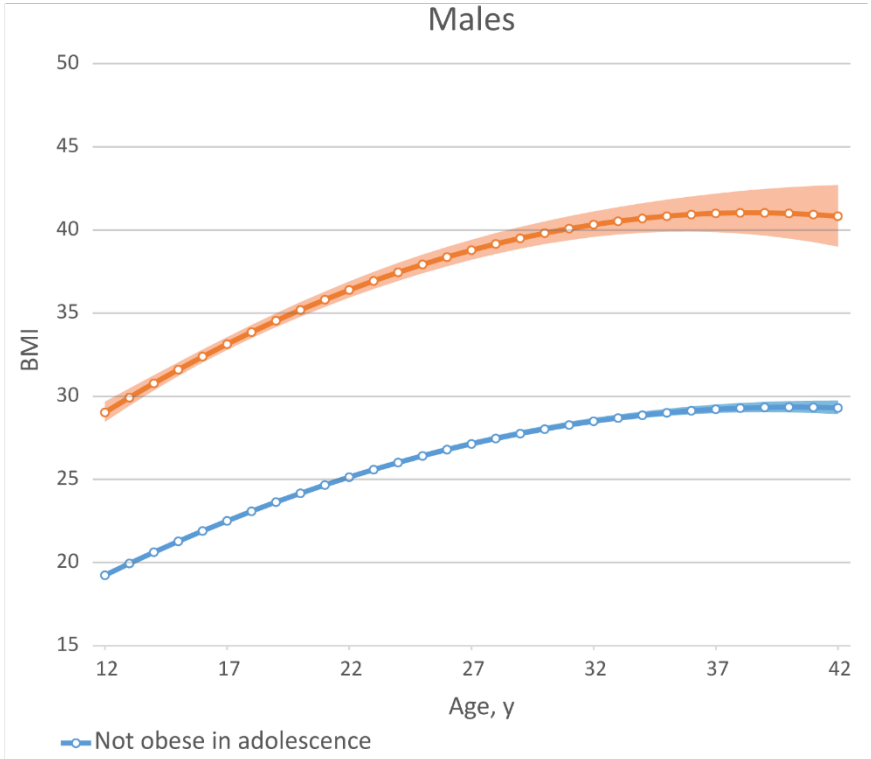
Predicted probability of CRP > 3 mg/L by BMI category and sex at Wave V (N= 4349)



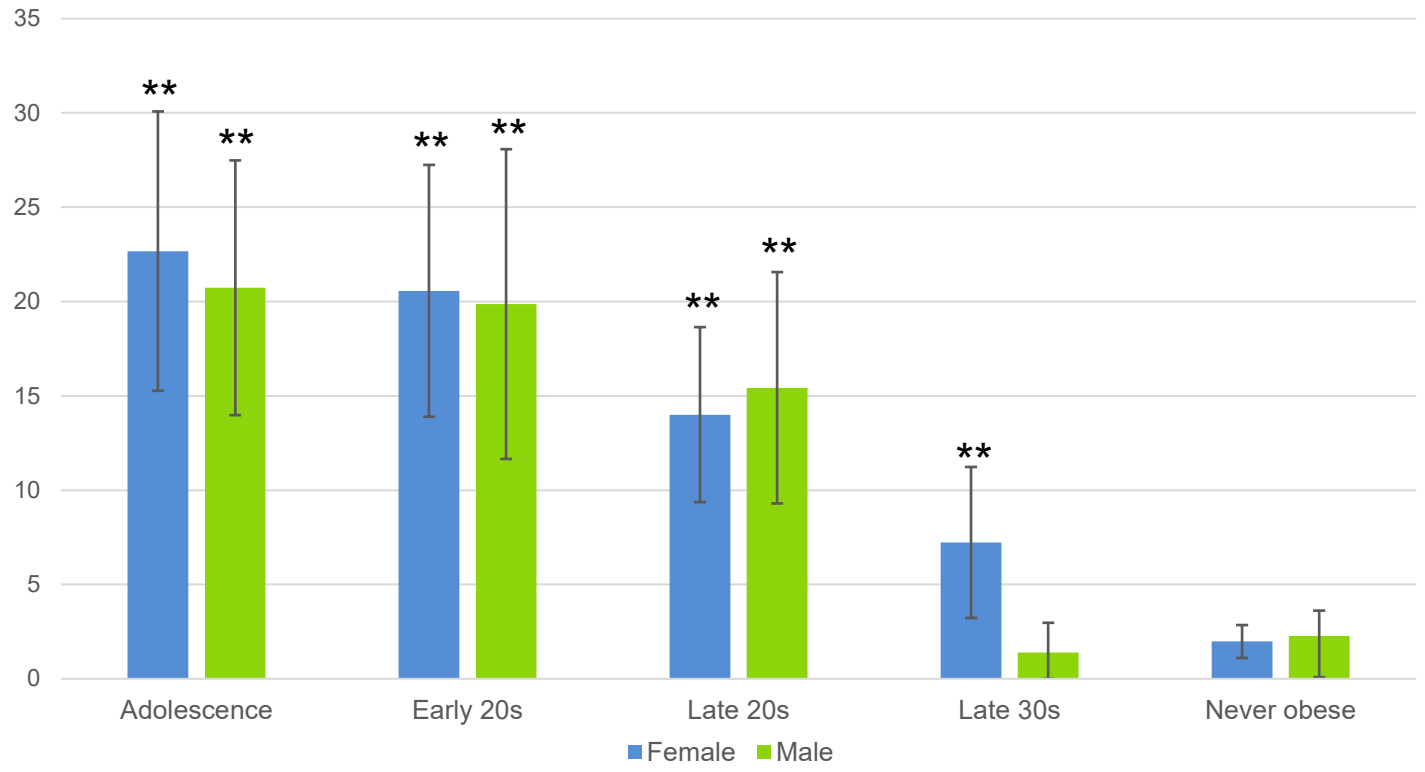
McDade et al. 2021. Body mass and the epidemic of chronic inflammation in early mid-adulthood. *Social Science & Medicine* 281:114059.

Unconditional growth curve of BMI by obesity status in adolescence, ages 12-42 (N=9483 females; 9133 males)

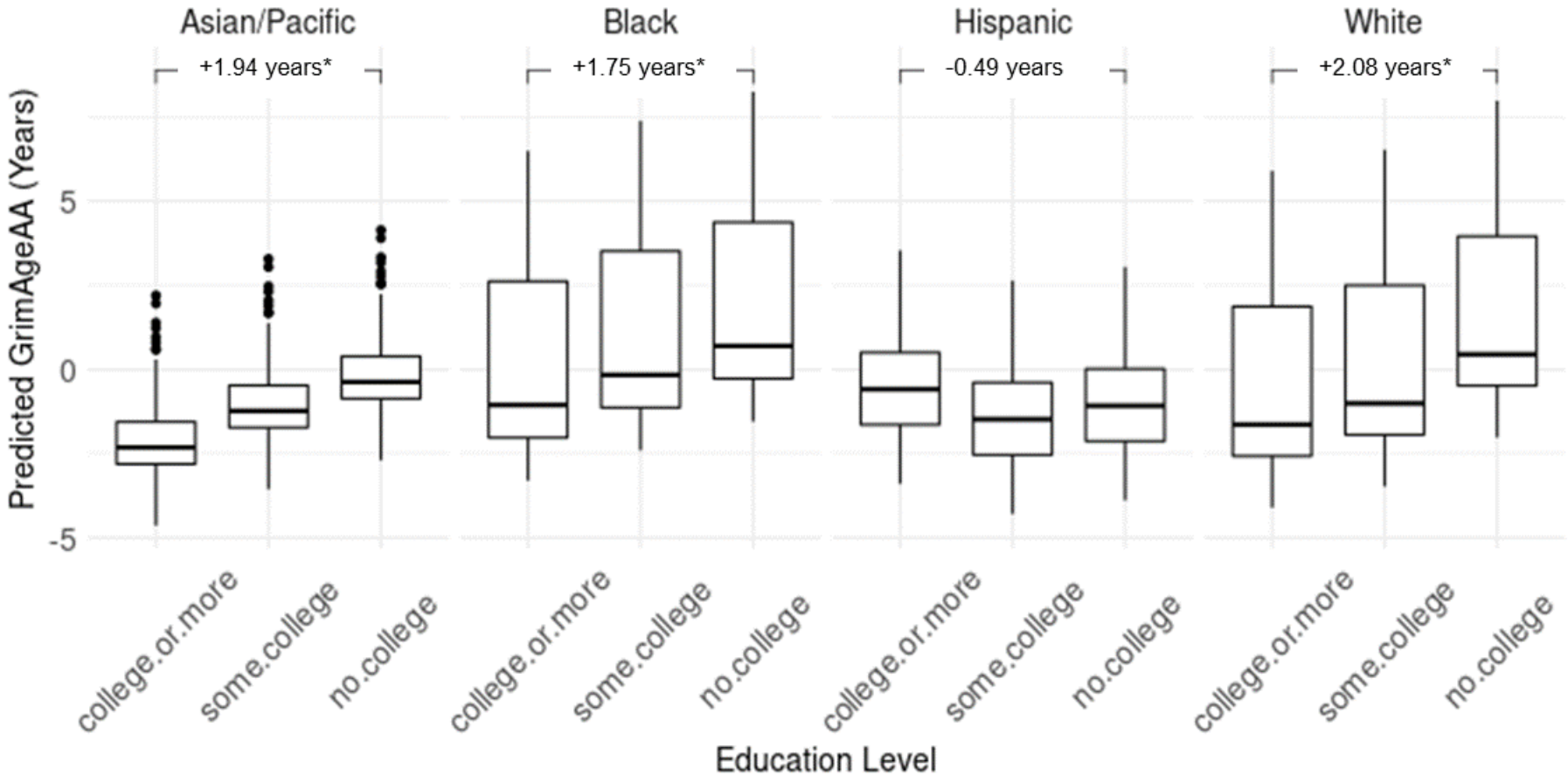




Predicted percent with diabetes in early midlife (WV) by timing of obesity onset (N=4541)

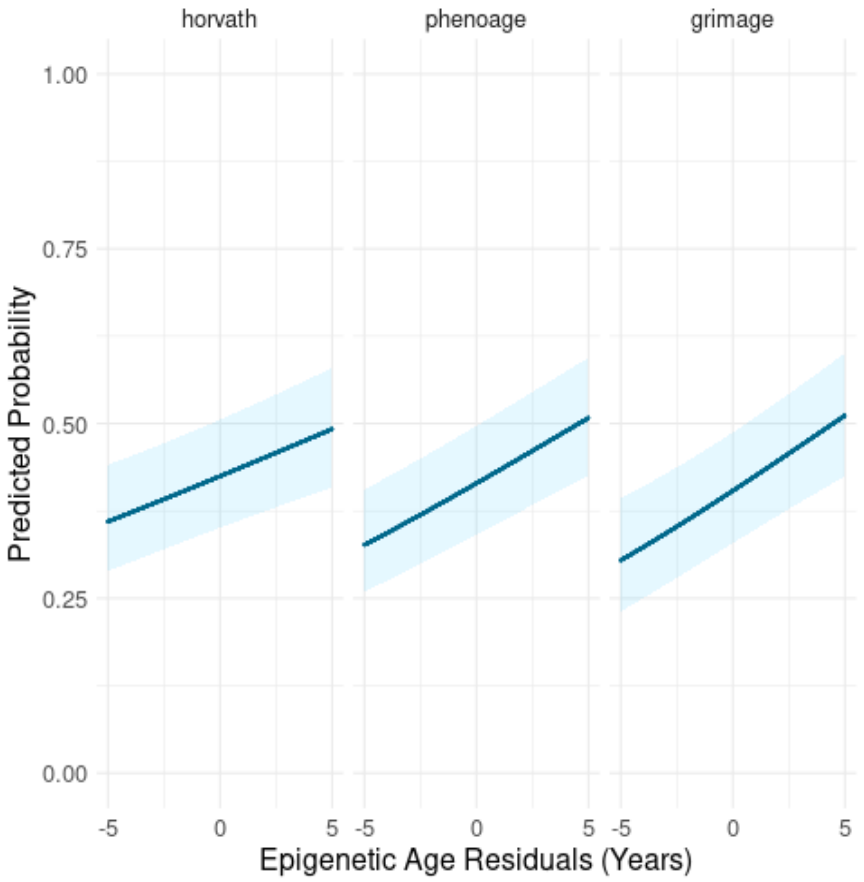


Epigenetic age acceleration (GrimAA) by education and race/ethnicity (N=4468)

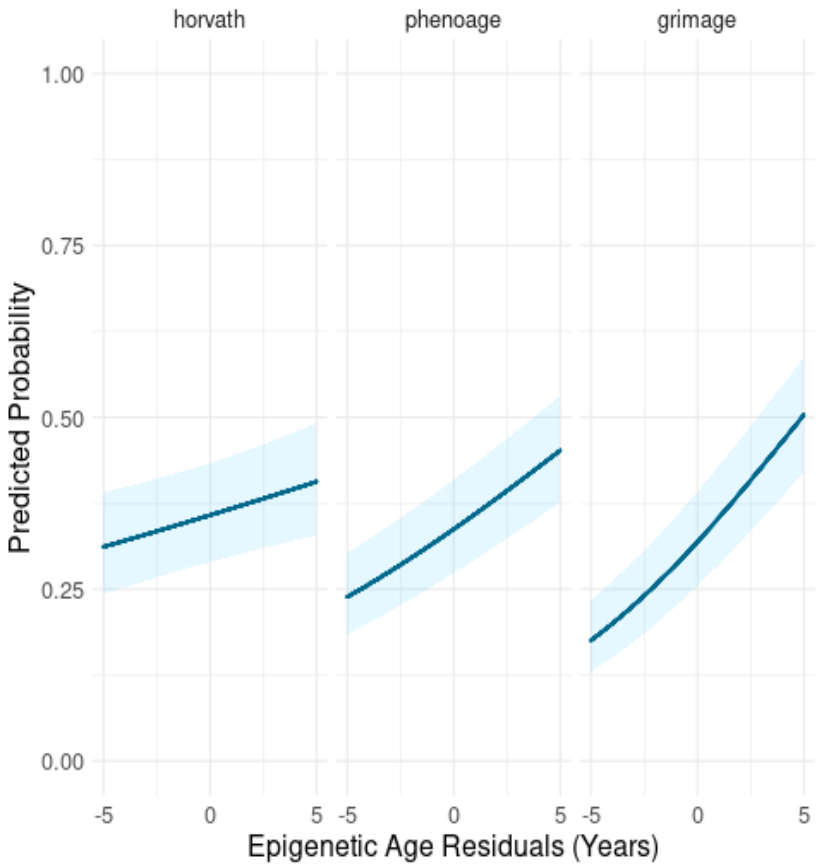


Epigenetic age acceleration and disease risk (N=4468)

Obesity



High CRP



Harris et al. 2022 “Epigenetic age acceleration is associated with disease risks in early midlife adults in Add Health. Annual meetings of the Population Association of America.

Thank you!

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Questions: kathie_harris@unc.edu