Supplementary Online Content

Bourassa KJ, Moffitt TE, Ambler A, et al. Association of treatable health conditions during adolescence with accelerated aging at midlife. *JAMA Pediatr.* Published online February 21, 2022. doi:10.1001/jamapediatrics.2021.6417

This supplementary material has been provided by the authors to give readers additional information about their work.

eMethods 1. Using Count Variables for Adolescent Health Conditions

We tested additional models to examine whether midlife aging scores might vary based on the number of study visits during which participants had the adolescent health conditions. To do so, we examined the additional variance explained by a count variable of the study visits a participant had a condition compared to whether or not participants had a condition at any study occasion. In bivariate analyses controlling for sex, using a count variable did not appreciably increase the variance in the midlife aging factor score explained by asthma (0.0% additional variance explained), smoking (0.1% less variance explained), obesity (0.4% additional variance explained), or psychological disorders (0.1% additional variance explained). Nor did the count variables appreciably increase the variance in the midlife aging factor score explained by the four of the health conditions in the multivariable model (0.3% additional variance explained). The results suggest count variables do not explain additional variance beyond the use of the main study variables.

eMethods 2. Association of Internalizing and Externalizing Psychological Disorders with Midlife Aging

We conducted an additional analysis to test whether internalizing (anxiety and depression) and externalizing psychological disorders (conduct disorder and attention-deficit/hyperactivity disorder) were more strongly associated with biological age. In bivariate models controlling for sex, both adolescents with internalizing (0.31 *SD* units, 95% CI 0.14, 0.49]) and externalizing mental health disorders (0.52 *SD* units, 95% CI 0.36, 0.69]) were biologically older in midlife. In a combined model, both internalizing (0.24 *SD* units, 95% CI 0.08, 0.39]) and externalizing mental health disorders (0.48 *SD* units, 95% CI 0.31, 0.64]) remained associated with midlife aging.

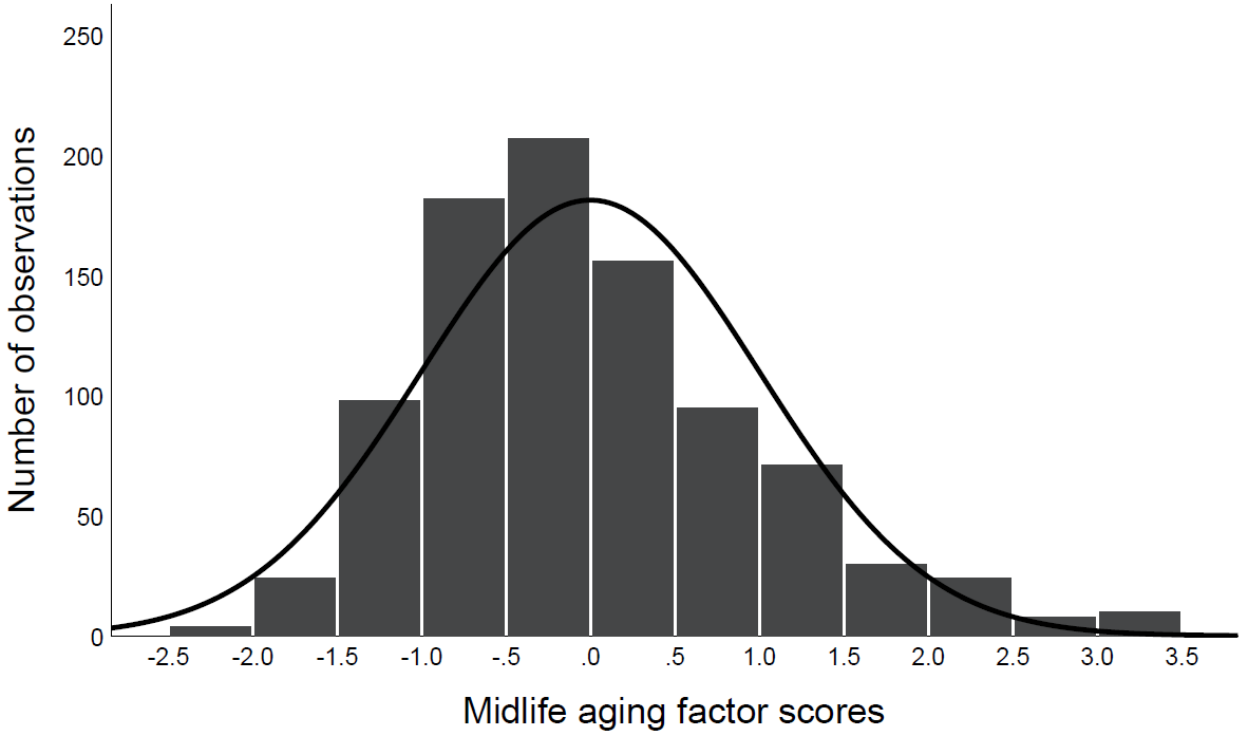
eTable. Descriptives and Correlations for Study Variables

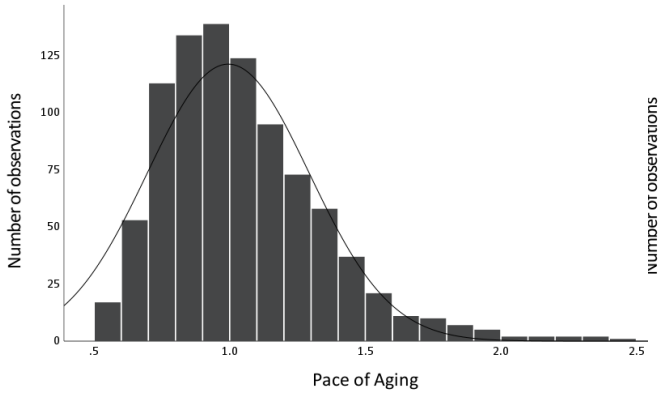
***N* = 910**	**Mean ± *SD***		**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**
Midlife aging factor score (1)	0.0 ± 1.0		1.0												
Pace of Aging (2)	1.0 ± 0.3		.87*	1.0											
Gait speed (3)	148.0 ± 19.2		-.63*	-.33*	1.0										
BrainAGE (4)	-0.1 ± 7.9		.35*	.19*	-.12*	1.0									
Facial age (5)	0.0 ± 1.0		.62*	.32*	-.24*	.14*	1.0								
Percent with asthma (6)	19.3%		-.01	.03	-.01	-.07*	.00	1.0							
Percent daily smoking (7)	14.7%		.22*	.17*	-.13*	.12*	.19*	.04	1.0						
Percent obese (8)	7.7%		.22*	.21*	-.17*	.04	.08*	.12	.05	1.0					
Percent with a mental health disorder (9)	38.6%		.21*	.17*	-.12*	.04	.17*	.11	.48*	.15*	1.0				
Childhood health (10)	0.0 ± 1.0		.25*	.22*	-.19*	.08*	.12*	.23*	.05	.34*	.04	1.0			
Adverse childhood experiences (11)	1.0 ± 1.2		.22*	.19*	-.12*	.14*	.13*	-.02	.22*	.05	.22*	.08*	1.0		
Childhood SES (12)	3.8 ± 1.1		-.29*	-.23*	.20*	-.11*	-.23*	.04	-.17*	-.07*	-.18*	-.13*	-.27*	1.0	
Percent female (13)	49.6%		.04	.01	-.09*	.12*	-.03	-.05	.18*	.05	-.01	-.01	-.00	-.01	1.0

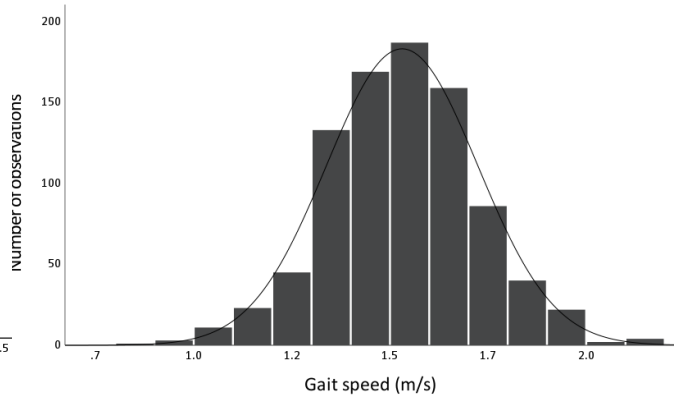
Note: Estimates represent all available data. Estimates between continuous variables are Pearson's correlations, estimates between dichotomous and continuous variables are point biserial correlations, and estimates between dichotomous variables are tetrachoric correlations. SES = socioeconomic status. The Midlife Aging factor score is assessed in *SD* units, the Pace of Aging is assessed in years of biological aging per chronological year, gait speed is assessed in centimeters per second, brainAGE is assessed in the difference of years between predicted and actual brain age, facial age and childhood health are assessed in *SD* units, childhood SES is assessed on a 6-point scale, and adverse childhood experiences are assessed as a count variable truncated to a maximum of four.
* = $p < .05$.

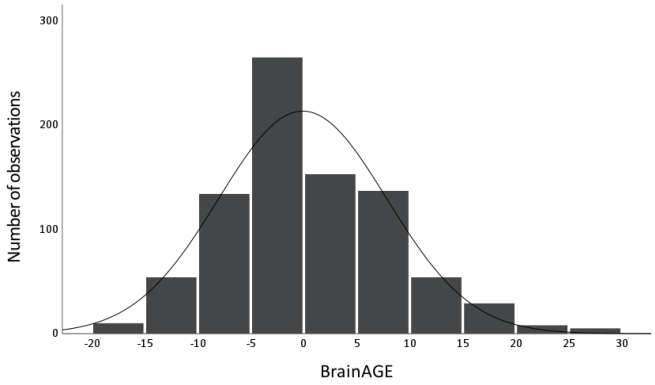
eFigure 1. Visualization of Aging Outcomes

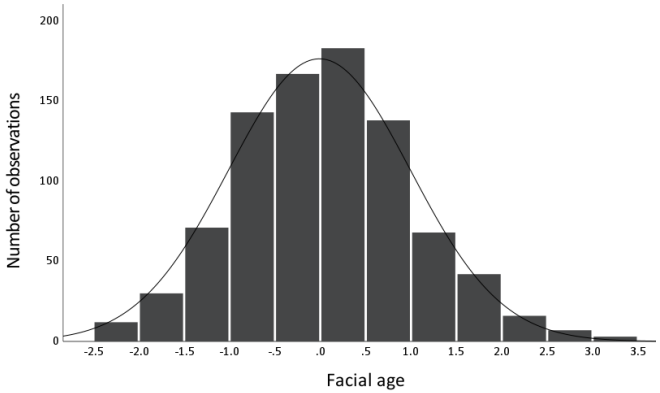
Histograms represent all available data. Binning for the midlife aging factor and facial age was done at 0.5, Pace of Aging at 0.1, and BrainAGE at 5.





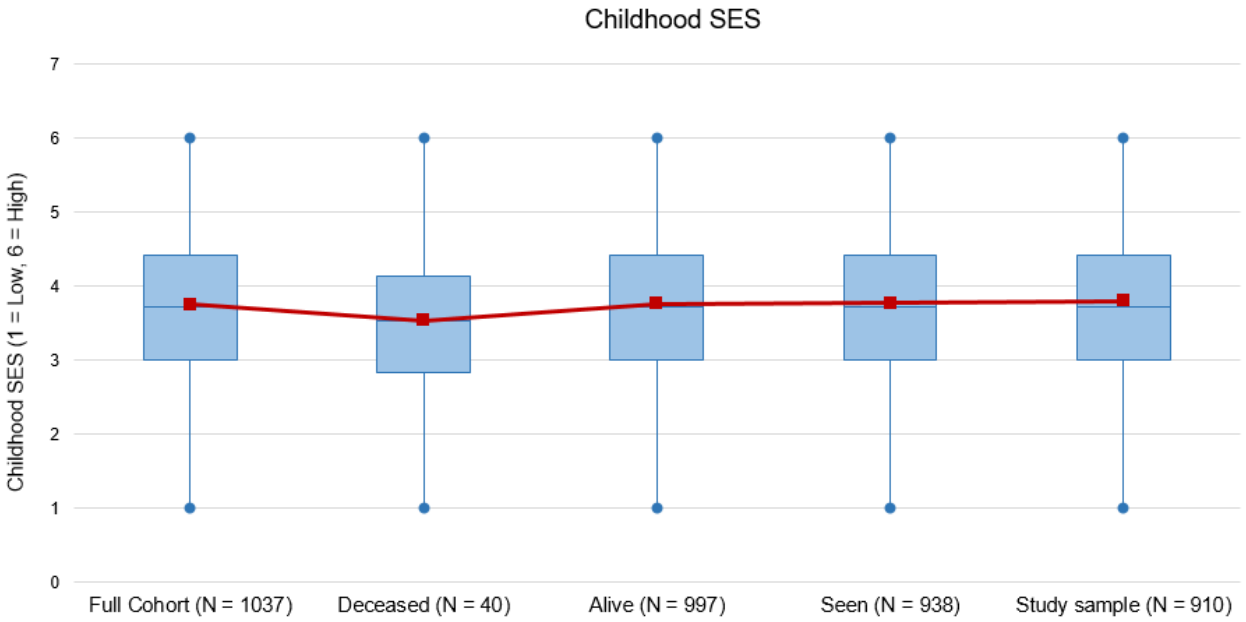


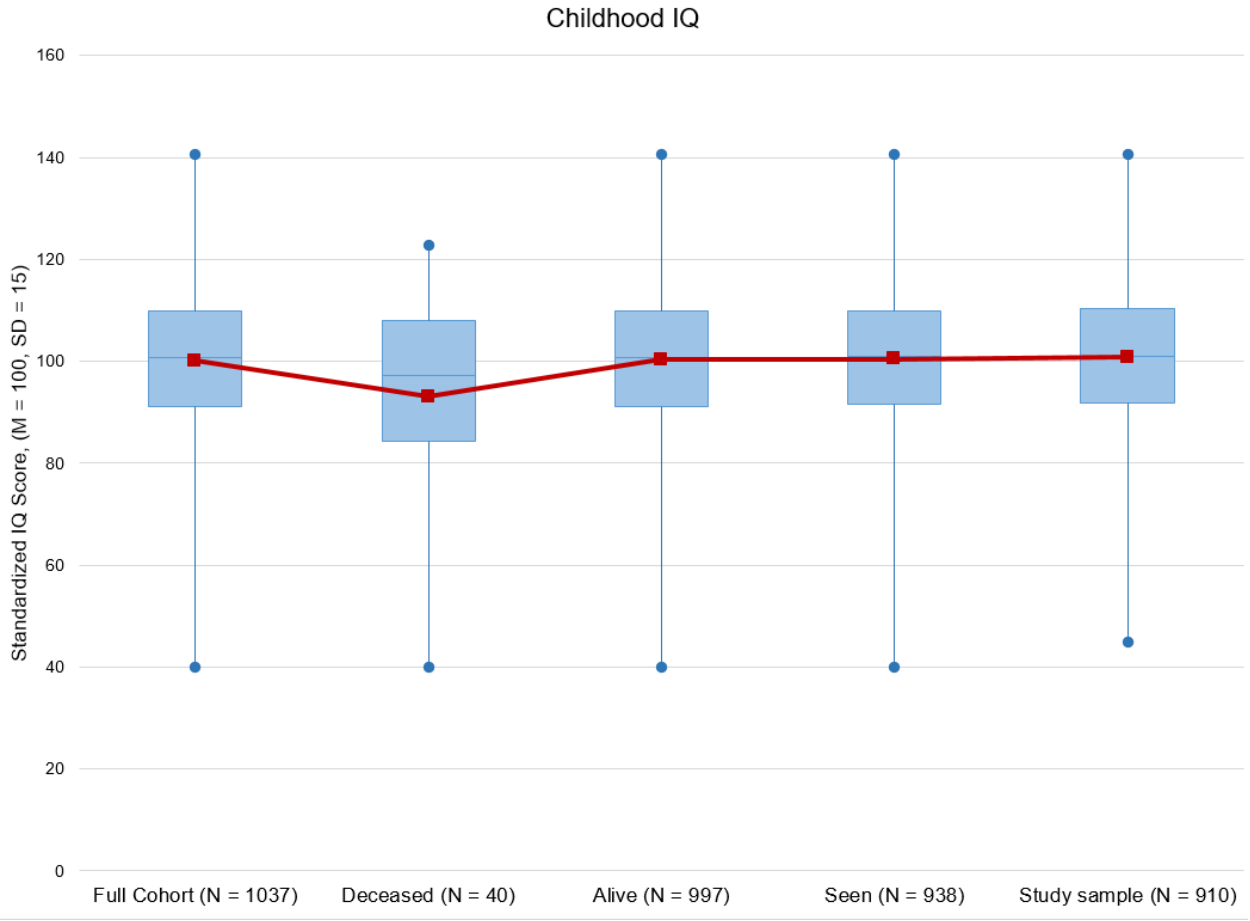


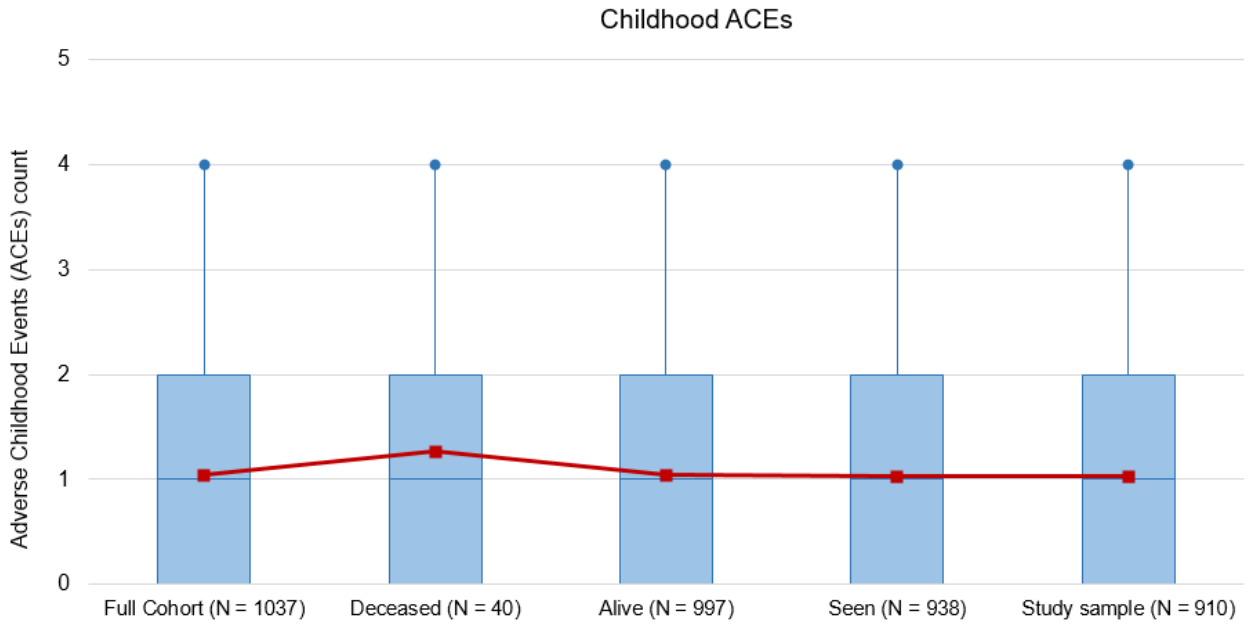


eFigure 2. Attrition Analyses

In attrition analyses, we tested whether participants in the Phase 45 data collection were representative of the original cohort in terms of childhood socioeconomic status (SES), childhood IQ, and adverse childhood experiences (ACEs). There were no significant differences in childhood SES, IQ, or ACEs between the full cohort, those still alive, those seen at Phase 45, and those included in the current study (*n* = 910). Boxes indicate median with interquartile range (25th to 75th %) and error bars indicate ranges.







eFigure 3. Conceptual Model of Primary Analyses

Conceptual diagram of the primary study models. Covariances between health conditions and covariates were not included in the figure for clarity. SES = socioeconomic status.