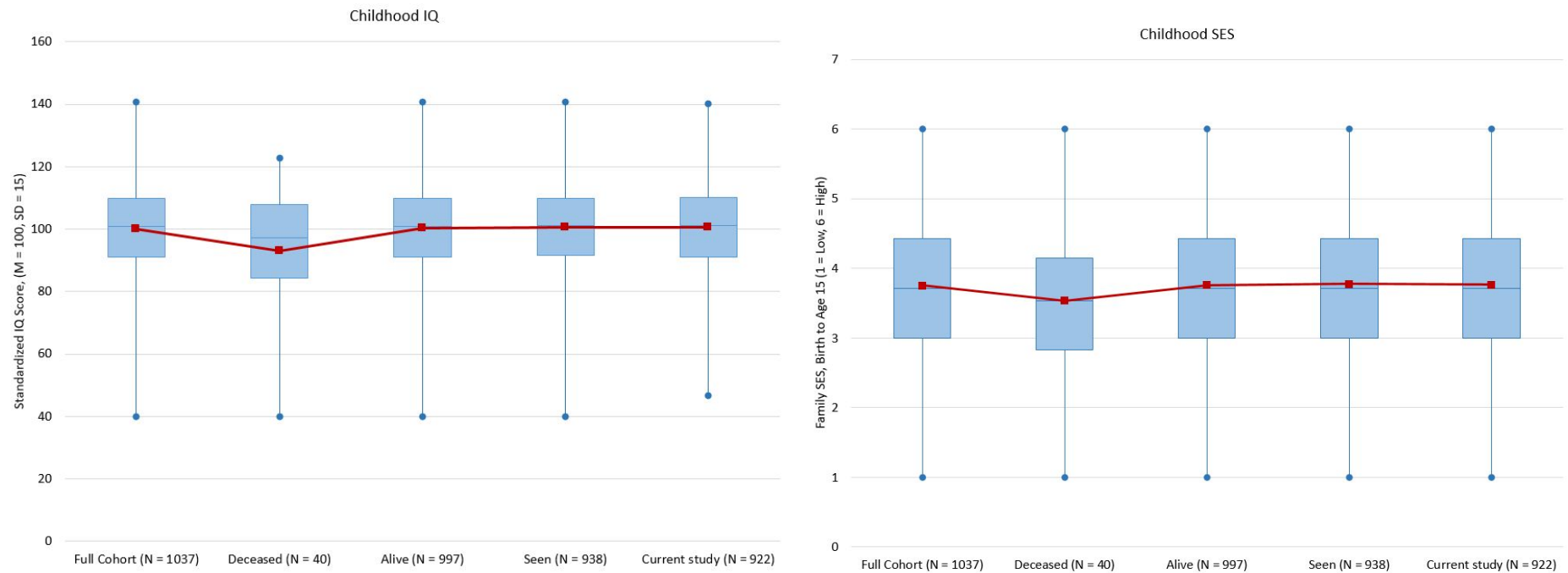40

Bourassa et al., Lower Cardiovascular Reactivity is Associated with More Childhood Adversity and Poorer Midlife Health: Replicated Findings from the Dunedin and MIDUS Cohorts

Supplemental Information

Supplemental Figure 1. An attrition analysis was conducted using childhood IQ and SES for the Dunedin cohort to determine whether

participants used in the current study were representative of the original cohort. No significant differences in childhood IQ or family SES were

found between the full cohort, those still alive, those seen at Phase 45 or those included in the current study.

Supplemental Table 1. *Cardiovascular Reactivity Results Separated by Task, Measure, and Cohort*

	Dunedin (n = 922)		MIDUS (n = 1,015)	
	Stroop task	**Mental arithmetic**	**Stroop task**	**Mental arithmetic**
Heart rate reactivity	4.9 ± 6.5 [-1.11, 58.0]	2.1 ± 5.3 [-15.0, 37.0]	4.0 ± 4.5 [-8.3, 38.0]	2.9 ± 3.7 [-9.4, 23.9]
Systolic BP reactivity	9.0 ± 7.4 [-16.8, 43.0]	6.9 ± 6.9 [18.1, 30.9]	13.8 ± 12.3 [-35.8, 68.2]	10.2 ± 11.7 [-33.7, 58.0]
Diastolic BP reactivity	6.2 ± 4.5 [-8.6, 20.1]	3.9 ± 4.2 [-12.8, 16.6]	6.5 ± 4.7 [-15.8, 24.7]	5.1 ± 4.7 [-21.9, 21.1]

All values represent means, standard deviations, and range for the distributions (Mean ± *SD* [min, max]). BP = blood pressure. Heart rate was measured in beats per minute. Blood pressure was measured in millimeters mercury.

Supplemental Table 2. *Systolic and Diastolic Blood Pressure Reactivity Associations*

	Dunedin (*n* = 922)		MIDUS (*n* = 1,015)	
	Systolic BP reactivity	Diastolic BP reactivity	Systolic BP reactivity	Diastolic BP reactivity
Childhood predictors				
Adverse childhood experiences	-0.13* [-0.19, -0.06]	-0.10* [-0.17, -0.04]	-0.09* [-0.15, -0.03]	-0.09* [-0.15, -0.03]
Childhood SES	0.12* [0.06, 0.18]	0.07* [0.01, 0.13]	0.05 [-0.01, 0.10]	0.05 [-0.02, 0.12]
Health outcomes				
Self-reported health	0.19* [0.13, 0.26]	0.14* [0.08, 0.21]	0.10* [0.02, 0.17]	0.12* [0.05, 0.19]
Inflammation	-0.15* [-0.22, -0.08]	-0.09* [-0.16, -0.02]	-0.06 [-0.13, 0.00]	-0.11* [-0.17, -0.04]
Hypertension	-0.02 [-0.05, 0.01]	-0.01 [-0.05, 0.04]	-0.00 [-0.06, 0.06]	0.00 [-0.03, 0.04]
Pace of aging	-0.23* [-0.30, -0.17]	-0.16* [-0.23, -0.10]	—	—
Mortality	—	—	-0.02 [-0.04, 0.01]	-0.02 [-0.08, 0.03]

Dunedin Longitudinal Study models are adjusted for sex and baseline cardiovascular activity, and MIDUS Study models are adjusted for sex, age, and baseline cardiovascular activity. BP = blood pressure. All statistics are β values except results for hypertension and mortality, which are log survival odds.

* = *p* < .05

Supplemental Table 3. *Non-linear Associations of Cardiovascular Reactivity with Health*

	Dunedin (*n* = 922)		MIDUS (*n* = 1,015)	
	HR reactivity	BP reactivity	HR reactivity	BP reactivity
Self-reported health	-0.01 [-0.09, 0.07]	-0.01 [-0.08, 0.06]	-0.03 [-0.11, 0.05]	-0.05 [-0.12, 0.02]
Inflammation	-0.03 [-0.13, 0.08]	0.04 [-0.04, 0.11]	-0.08* [-0.15, -0.01]	0.06 [-0.01, 0.12]
Hypertension	0.01 [-0.06, 0.08]	0.11 [-0.01, 0.22]	-0.04 [-0.105, 0.02]	0.04 [-0.09, 0.17]
Pace of aging	0.03 [-0.05, 0.11]	0.05 [-0.02, -0.12]	—	—
Mortality	—	—	-0.05 [-0.25, 0.15]	0.06 [-0.04, 0.16]

All predictors represent the linear association of the squared standardized variable with each outcome of interest. Dunedin Longitudinal Study models are adjusted for sex, baseline cardiovascular activity, and linear cardiovascular reactivity. MIDUS Study models are adjusted for sex, age, baseline cardiovascular activity, and linear cardiovascular reactivity. HR = heart rate, BP = blood pressure. All statistics are β values except results for hypertension and mortality, which are log survival odds.

* = *p* < .05

Supplemental Table 4. *Cardiovascular Reactivity Associations Windsorizing Outliers*

	Dunedin (*n* = 922)		MIDUS (*n* = 1,015)	
	HR reactivity	**BP reactivity**	**HR reactivity**	**BP reactivity**
Childhood predictors				
Adverse childhood experiences	-0.16* [-0.22, -0.10]	-0.12* [-0.18, -0.06]	-0.07* [-0.14, -0.01]	-0.11* [-0.17, -0.05]
Childhood SES	0.09* [0.03, 0.16]	0.10* [0.04, 0.17]	0.03 [-0.04, 0.10]	0.06 [-0.01, 0.13]
Health outcomes				
Self-reported health	0.10* [0.04, 0.17]	0.19* [0.12, 0.26]	0.11* [0.04, 0.18]	0.14* [0.06, 0.20]
Inflammation	-0.08* [-0.15, -0.01]	-0.13* [-0.20, -0.06]	-0.05 [-0.12, 0.01]	-0.09* [-0.15, -0.02]
Hypertension	-0.00 [-0.04, 0.03]	-0.03 [-0.07, 0.01]	0.09* [0.04, 0.13]	-0.02 [-0.06, 0.02]
Pace of aging	-0.17* [-0.24, -0.11]	-0.22* [-0.28, -0.15]	—	—
Mortality	—	—	-0.09* [-0.18, -0.00]	-0.04 [-0.08, 0.01]

Dunedin Longitudinal Study models are adjusted for sex and baseline cardiovascular activity, and MIDUS Study models are adjusted for sex, age, and baseline cardiovascular activity. BP = blood pressure. All statistics are β values except results for hypertension and mortality, which are log survival odds.

* = *p* < .05

Supplemental Table 5. *Assessing Sex Differences*

	Dunedin (*n* = 922)		MIDUS (*n* = 1,015)	
	HR reactivity	**BP reactivity**	**HR reactivity**	**BP reactivity**
ACEs	0.02 [-0.09, 0.12]	-0.10 [-0.21, 0.00]	-0.01 [-0.18, 0.16]	-0.03 [-0.23, 0.19]
Childhood SES	-0.08 [-0.31, 0.15]	-0.03 [-0.26, 0.20]	0.04 [-0.17, 0.25]	0.03 [-0.19, 0.24]
Self-reported health	0.05 [-0.05, 0.15]	0.02 [-0.13, 0.16]	0.09 [-0.03, 0.20]	0.06 [-0.07, 0.19]
Inflammation	0.04 [-0.07, 0.15]	-0.02 [-0.17, 0.14]	0.04 [-0.07, 0.14]	0.11 [-0.01, 0.23]
Hypertensive status†	0.03 [-0.02, 0.09]	0.01 [-0.06, 0.08]	0.02 [-0.05, 0.09]	0.02 [-0.05, 0.09]
Pace of aging	0.03 [-0.07, 0.13]	0.07 [-0.08, 0.21]	—	—
Mortality†	—	—	0.13 [-0.03, 0.30]	0.08* [0.01, 0.15]

Dunedin Longitudinal Study models are adjusted for sex and baseline cardiovascular activity, and MIDUS Study models are adjusted for sex, age, and baseline cardiovascular activity. BP = blood pressure. All statistics are β values except results for hypertension and mortality, which are log survival odds. Sex is coded as 0 = women, 1 = men.

* = *p* < .05

Supplemental Table 6. *Assessing the Role of Conscientiousness, Depression, and Cognitive Ability*

	Dunedin (*n* = 922)		MIDUS (*n* = 1,015)	
	HR reactivity	BP reactivity	HR reactivity	BP reactivity
Adverse childhood experiences				
Unadjusted	-0.16*	-0.12*	-0.08*	-0.11*
Controlling for conscientiousness	-0.14*	-0.10*	-0.08*	-0.09*
Controlling for cognitive ability	-0.12*	-0.07*	-0.07*	-0.09*
Controlling for depressive symptoms	-0.15*	-0.10*	-0.05	-0.04
Controlling for all	-0.11*	-0.04	-0.03	-0.03
Childhood SES				
Unadjusted	0.12*	0.10*	0.03	0.06
Controlling for conscientiousness	0.11*	0.09*	0.03	0.06
Controlling for cognitive ability	0.05	0.00	0.00	0.04
Controlling for depressive symptoms	0.11	0.09	0.02	0.05
Controlling for all	0.05	-0.00	-0.00	0.03
Self-reported health				
Unadjusted	0.10*	0.19*	0.10*	0.13*
Controlling for conscientiousness	0.07*	0.15*	0.10*	0.12*
Controlling for cognitive ability	0.07*	0.14*	0.08*	0.11*
Controlling for depressive symptoms	0.09*	0.17*	0.06	0.08*
Controlling for all	0.04	0.10*	0.04	0.05
Inflammation				
Unadjusted	-0.09*	-0.13*	-0.06*	-0.09*
Controlling for conscientiousness	-0.07	-0.11*	-0.06	-0.08*
Controlling for cognitive ability	-0.06	-0.10*	-0.05	-0.07*
Controlling for depressive symptoms	-0.08	-0.13*	-0.06	-0.08*
Controlling for all	-0.05	-0.08*	-0.05	-0.06
Hypertension				
Unadjusted	-0.00	-0.02	0.07*	-0.02
Controlling for conscientiousness	0.00	-0.01	0.08*	-0.01
Controlling for cognitive ability	0.00	-0.02	0.08*	-0.02
Controlling for depressive symptoms	-0.00	-0.02	0.07*	-0.02
Controlling for all	0.01	-0.00	0.08*	-0.02
Pace of aging				
Unadjusted	-0.17*	-0.22*	—	—
Controlling for conscientiousness	-0.14*	-0.17*	—	—
Controlling for cognitive ability	-0.11*	-0.14*	—	—
Controlling for depressive symptoms	-0.16*	-0.20*	—	—
Controlling for all	-0.08*	-0.10*	—	—
Mortality				

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Unadjusted	—	—	-0.08*	-0.03
Controlling for conscientiousness	—	—	-0.07	-0.02
Controlling for cognitive ability	—	—	-0.07	-0.03
Controlling for depressive symptoms	—	—	-0.06	-0.01
Controlling for all	—	—	-0.04	-0.01

Models using Dunedin Longitudinal Study data are adjusted for sex and baseline cardiovascular activity, and models using MIDUS Study data are adjusted for sex, age, and baseline cardiovascular activity. HR = heart rate, BP = blood pressure. All statistics are β values except results for hypertension and mortality, which are log survival odds. Mortality analyses excluded participants with missing predictor data.

* = $p < .05$