

Supplementary Table 1: Threshold criteria for each metabolic syndrome component^{1,2,3}

Age group (years)	Abdominal obesity (waist circumference)	Elevated triglycerides (or treatment of elevated triglycerides)	Reduced HDL-cholesterol (or treatment for lipid abnormalities)	Elevated blood pressure (or treatment of diagnosed hypertension)	Impaired fasting glycemia (or diagnosed type 2 diabetes)
10-<16	≥90 th percentile	≥1.7 mmol/L (≥150 mg/dL)	<1.03 mmol/L (<40 mg/dL)	SBP ≥130 mm Hg or DBP ≥85 mm Hg	≥5.6 mmol/L (≥100 mg/dL)
≥16	≥94 cm for males ≥80 cm for females	≥1.7 mmol/L (≥150 mg/dL)	<1.03 mmol/L (<40 mg/dL) in males <1.29 mmol/L (<50 mg/dL) in females)	SBP ≥130 mm Hg or DBP ≥85 mm Hg	≥5.6 mmol/L (≥100 mg/dL)

Abbreviations: HDL – high-density lipoprotein; SBP – systolic blood pressure; DBP – diastolic blood pressure

¹Zimmet P, Alberti KGM, Kaufman F, Tajima N, Silink M, Arslanian S, et al. The metabolic syndrome in children and adolescents - an IDF consensus report. *Pediatr Diabetes* 2007; 8:299–306.

²Alberti KGMM, Zimmet P, Shaw J. Metabolic syndrome--a new world-wide definition. A Consensus Statement from the International Diabetes Federation. *Diabet Med* 2006; 23:469–480.

³Alberti KGMM, Eckel RH, Grundy SM, Zimmet PZ, Cleeman JI, Donato KA, et al. Harmonizing the metabolic syndrome: a joint interim statement of the International Diabetes Federation Task Force on Epidemiology and Prevention; National Heart, Lung, and Blood Institute; American Heart Association; World Heart Federation; International Atherosclerosis Society; and International Association for the Study of Obesity. *Circulation* 2009; 120:1640–1645.

Supplementary Table 2: Unadjusted and adjusted models assessing the association of each categorical MetS component at baseline with each neurocognitive index at baseline in YPHIV and YPHEU

Outcome	YPHIV (N=352)						YPHEU (N=68)					
	Unadjusted			Adjusted ¹			Unadjusted			Adjusted ²		
	N	Estimates (95% CI)	P-value	N	Estimates (95% CI)	P-value	N	Estimates (95% CI)	P-value	N	Estimates (95% CI)	P-value
Exposure 1) Abdominal obesity												
Verbal Comprehension	349	-2.2 (-6.2, 1.9)	0.29	318	-2.7 (-6.6, 1.3)	0.19	68	-2.5 (-11.3, 6.2)	0.57	65	-3.9 (-10.7, 2.9)	0.26
Perceptual Reasoning	350	-1.9 (-6.0, 2.2)	0.37	319	-2.7 (-6.9, 1.4)	0.19	68	-1.9 (-9.1, 5.4)	0.62	65	-1.9 (-7.8, 4.0)	0.53
Working Memory	350	-0.2 (-5.1, 4.6)	0.92	319	-1.2 (-6.1, 3.8)	0.64	68	3.3 (-3.2, 9.7)	0.32	65	3.1 (-3.6, 9.7)	0.36
Processing Speed	350	-0.7 (-5.0, 3.6)	0.74	319	-2.5 (-6.6, 1.6)	0.23	68	3.8 (-0.8, 8.4)	0.10	65	3.7 (-1.3, 8.7)	0.15
Full-scale IQ	349	-1.8 (-6.1, 2.4)	0.40	318	-2.9 (-7.1, 1.3)	0.17	68	0.7 (-6.4, 7.8)	0.85	65	0.1 (-6.1, 6.3)	0.98
Exposure 2) Elevated triglycerides												
Verbal Comprehension	349	1.7 (-2.5, 5.9)	0.42	318	1.0 (-3.0, 5.0)	0.61	68	1.6 (-11.1, 14.4)	0.80	65	-9.9 (-17.7, -2.2)	0.012
Perceptual Reasoning	350	3.5 (-0.7, 7.7)	0.11	319	1.4 (-2.8, 5.6)	0.51	68	2.7 (-7.1, 12.6)	0.58	65	-7.9 (-13.2, -2.5)	0.004
Working Memory	350	0.4 (-4.0, 4.8)	0.86	319	0.1 (-4.5, 4.6)	0.97	68	-1.9 (-11.5, 7.7)	0.70	65	-6.1 (-15.8, 3.6)	0.22
Processing Speed	350	2.1 (-2.0, 6.2)	0.32	319	1.9 (-2.2, 6.1)	0.36	68	3.9 (-3.0, 10.8)	0.27	65	3.7 (-3.1, 10.4)	0.29
Full-scale IQ	349	2.7 (-1.8, 7.2)	0.24	318	1.6 (-2.7, 6.0)	0.46	68	1.8 (-8.7, 12.2)	0.74	65	-7.5 (-14.6, -0.4)	0.037
Exposure 3) Low HDL cholesterol												
Verbal Comprehension	349	-1.7 (-5.6, 2.2)	0.38	318	2.5 (-1.6, 6.6)	0.23	68	6.0 (-7.6, 19.6)	0.39	65	1.9 (-11.3, 15.0)	0.78
Perceptual Reasoning	350	-1.3 (-4.8, 2.3)	0.48	319	1.1 (-3.0, 5.3)	0.59	68	2.8 (-8.1, 13.8)	0.61	65	-2.7 (-12.5, 7.2)	0.59
Working Memory	350	2.9 (-1.1, 7.0)	0.16	319	3.7 (-1.2, 8.5)	0.14	68	1.8 (-8.9, 12.6)	0.74	65	-1.9 (-14.2, 10.5)	0.77
Processing Speed	350	1.2 (-2.6, 5.0)	0.54	319	3.9 (-0.4, 8.2)	0.074	68	5.8 (1.3, 10.2)	0.012	65	5.5 (-0.1, 11.0)	0.054
Full-scale IQ	349	-0.3 (-4.1, 3.5)	0.88	318	3.0 (-1.3, 7.4)	0.17	68	5.3 (-6.1, 16.6)	0.36	65	0.9 (-11.2, 13.1)	0.88
Exposure 4) Raised blood pressure												
Verbal Comprehension	349	2.8 (-3.7, 9.3)	0.40	318	3.5 (-2.9, 9.8)	0.28	68	2.4 (-12.1, 16.8)	0.75	65	-4.6 (-18.5, 9.2)	0.51
Perceptual Reasoning	350	3.8 (-2.7, 10.4)	0.25	319	5.1 (-1.6, 11.8)	0.13	68	7.6 (-5.4, 20.5)	0.25	65	6.7 (-12.0, 25.4)	0.48
Working Memory	350	4.5 (-1.6, 10.7)	0.15	319	4.1 (-2.7, 10.9)	0.24	68	-3.0 (-13.2, 7.2)	0.56	65	-7.8 (-21.6, 6.1)	0.27
Processing Speed	350	5.3 (-2.4, 13.0)	0.18	319	7.5 (-1.0, 16.1)	0.085	68	-7.2 (-14.6, 0.1)	0.055	65	-8.6 (-18.4, 1.2)	0.086
Full-scale IQ	349	4.7 (-2.1, 11.4)	0.17	318	5.7 (-1.5, 12.8)	0.12	68	0.5 (-10.4, 11.5)	0.92	65	-4.4 (-17.2, 8.4)	0.50
Exposure 5) Impaired fasting glycemia												
Verbal Comprehension	349	-1.0 (-15.0, 13.1)	0.89	318	-3.2 (-16.7, 10.2)	0.64	68	-10.5 (-23.8, 2.8)	0.12	65	-12.7 (-24.7, -0.7)	0.038
Perceptual Reasoning	350	-1.1 (-9.9, 7.7)	0.81	319	-4.7 (-14.0, 4.7)	0.33	68	-2.0 (-16.4, 12.4)	0.78	65	-2.5 (-14.4, 9.4)	0.68
Working Memory	350	-1.4 (-15.1, 12.3)	0.84	319	-2.5 (-16.1, 11.0)	0.71	68	-0.8 (-12.0, 10.4)	0.89	65	-3.2 (-15.3, 8.9)	0.60
Processing Speed	350	8.7 (-3.8, 21.1)	0.17	319	8.0 (-3.5, 19.6)	0.17	68	-3.5 (-10.5, 3.6)	0.34	65	-5.0 (-13.6, 3.7)	0.26
Full-scale IQ	349	1.6 (-12.6, 15.8)	0.82	318	-1.0 (-14.9, 12.9)	0.89	68	-5.8 (-16.7, 5.1)	0.30	65	-7.9 (-17.4, 1.7)	0.11
Exposure 6) Fulfilled criteria for ≥2 MetS components												
Verbal Comprehension	349	-0.6 (-4.9, 3.8)	0.80	318	0.2 (-4.1, 4.6)	0.92	68	3.2 (-8.3, 14.7)	0.59	65	-4.2 (-14.7, 6.4)	0.44

Outcome	YPHIV (N=352)						YPHEU (N=68)					
	Unadjusted			Adjusted ¹			Unadjusted			Adjusted ²		
	N	Estimates (95% CI)	P-value	N	Estimates (95% CI)	P-value	N	Estimates (95% CI)	P-value	N	Estimates (95% CI)	P-value
Perceptual Reasoning	350	0.5 (-3.8, 4.9)	0.81	319	0.8 (-3.9, 5.5)	0.74	68	3.7 (-5.2, 12.7)	0.41	65	-2.0 (-10.3, 6.2)	0.63
Working Memory	350	2.9 (-2.0, 7.8)	0.25	319	2.0 (-3.3, 7.2)	0.46	68	2.0 (-6.7, 10.7)	0.66	65	-1.5 (-10.6, 7.7)	0.75
Processing Speed	350	3.4 (-1.3, 8.1)	0.15	319	3.9 (-1.0, 8.8)	0.12	68	3.3 (-1.9, 8.6)	0.21	65	3.1 (-2.6, 8.7)	0.29
Full-scale IQ	349	1.6 (-3.0, 6.2)	0.50	318	1.9 (-2.9, 6.7)	0.43	68	3.9 (-5.5, 13.2)	0.42	65	-1.9 (-11.3, 7.4)	0.68

¹Models are adjusted for age at neurocognitive assessment (years), sex, race/ethnicity (NH Black vs not NH Black), primary language reported in WISC/WAIS (English vs Bilingual/Other), household income (\leq \$20,000 vs $>$ \$20,000), Tanner stage (3-4 and 5 vs 1-2), age (years) first started HAART, nadir CD4, peak HIV RNA, and ARV use.

²Models are adjusted for age at neurocognitive assessment (years), sex, race/ethnicity (NH Black vs not NH Black), primary language reported in WISC/WAIS (English vs Bilingual/Other), household income (\leq \$20,000 vs $>$ \$20,000), and Tanner stage (3-4 and 5 vs 1-2).

Supplemental Table 3: Metabolic syndrome (MetS) components and neurocognitive indices at baseline from WISC-IV or WAIS-IV between YPHIV included and excluded from the longitudinal analysis

		Included (N=183)	Excluded (N=167)	P-value
MetS components				
Abdominal obesity	N (%)	30 (16%)	30 (18%)	0.70
Elevated triglycerides	N (%)	39 (21%)	37 (22%)	0.85
Low HDL cholesterol	N (%)	37 (20%)	37 (22%)	0.66
Elevated blood pressure	N (%)	16 (9%)	5 (3%)	0.024
Impaired fasting glycemia	N (%)	6 (3%)	3 (2%)	0.38
Fulfilled criteria for ≥ 2 MetS components	N (%)	32 (17%)	20 (12%)	0.15
Fulfilled criteria for ≥ 3 MetS components	N (%)	8 (4%)	4 (2%)	0.31
Neurocognitive indices				
Verbal Comprehension score	Median (IQR)	91 (77, 98)	87 (77, 96)	0.18
	Mean (SD)	88.30 (15.67)	86.23 (15.58)	
	Min, Max	45, 128	45, 138	
Perceptual Reasoning score	Median (IQR)	92 (82, 104)	90 (79, 100)	0.054
	Mean (SD)	91.83 (15.62)	88.47 (15.80)	
	Min, Max	45, 131	45, 125	
Working Memory score	Median (IQR)	91 (80, 99)	88 (80, 99)	0.72
	Mean (SD)	88.33 (15.85)	87.93 (16.27)	
	Min, Max	50, 135	50, 132	
Processing Speed score	Median (IQR)	85 (75, 97)	88 (78, 97)	0.52
	Mean (SD)	85.86 (15.74)	87.02 (15.40)	
	Min, Max	50, 128	50, 121	
Full-scale IQ score	Median (IQR)	87 (76, 97)	85 (76, 94)	0.33
	Mean (SD)	86.06 (16.24)	84.49 (15.99)	
	Min, Max	40, 129	40, 130	

*Chi-Square Test

**Wilcoxon Test

Abbreviations: WISC-IV - Wechsler Intelligence Scale for Children, Fourth Edition; WAIS-IV - Wechsler Adult Intelligence Scale, Fourth Edition; YPHIV - youth living with perinatally-acquired HIV; HDL - high-density lipoprotein; SD – standard deviation; IQR – interquartile range