Supplemental Online Content

Law EC, Han MX, Lai Z, et al. Associations between infant screen use, electroencephalography markers, and cognitive outcomes. *JAMA Pediatr*. Published online January 30, 2023. doi:10.1001/jamapediatrics.2022.5674

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

eTable 1. The Harvard Automated Processing Pipeline for EEG (HAPPE) processing quality metrics

Quality metrics	**Mean**	***SD***
Length of raw EEG (seconds)	188.70	28.80
Good channels (%)	91.17	5.28
Rejected independent components per recording period (%)	35.99	12.68
EEG variance retained (%)	70.07	16.42
Mean retained artifact probability	0.11	0.04
Median retained artifact probability	0.06	0.05

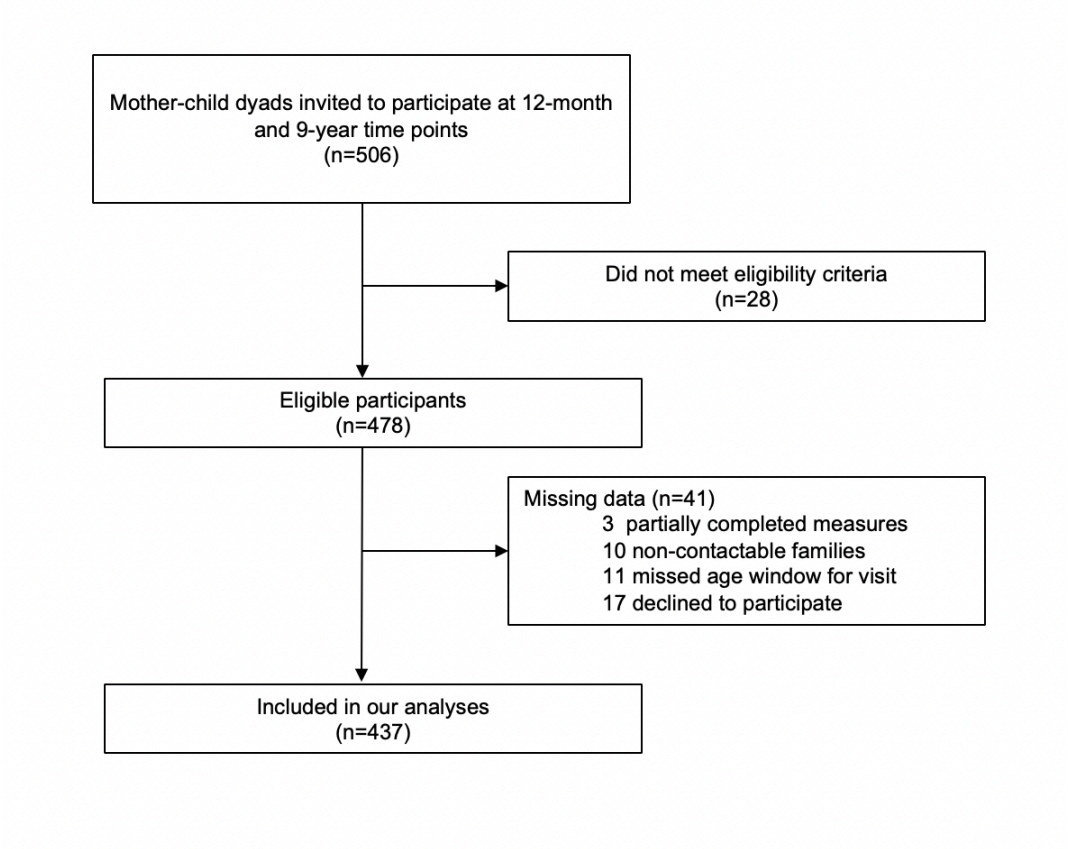
eTable 2. Monthly household income and its association with 9-year executive function tasks

Executive Function Domain	Household income (Ref: <SGD 2000/month)								
	SGD 2000-3999 Coefficient (95% CI)	***SE***	***p***	**SGD 4000-5999 Coefficient (95% CI)**	***SE***	***p***	**≥SGD 6000 Coefficient (95% CI)**	***SE***	***p***
Inhibition Scaled Score	-0.33 (-1.39, 0.74)	0.54	0.55	0.50 (-0.62, 1.62)	0.57	0.38	**2.89 (0.50, 5.29)**	**1.21**	**0.018**
Shifting Scaled Score	0.44 (-0.76, 1.64)	0.61	0.47	**2.23 (0.97, 3.50)**	**0.64**	**0.001**	**3.38 (2.13, 4.63)**	**0.63**	**<0.001**
Working Memory Scaled Score	0.40 (-0.32, 1.11)	0.36	0.28	0.70 (-0.05, 1.45)	0.38	0.07	**1.60 (0.87, 2.34)**	**0.37**	**<0.001**

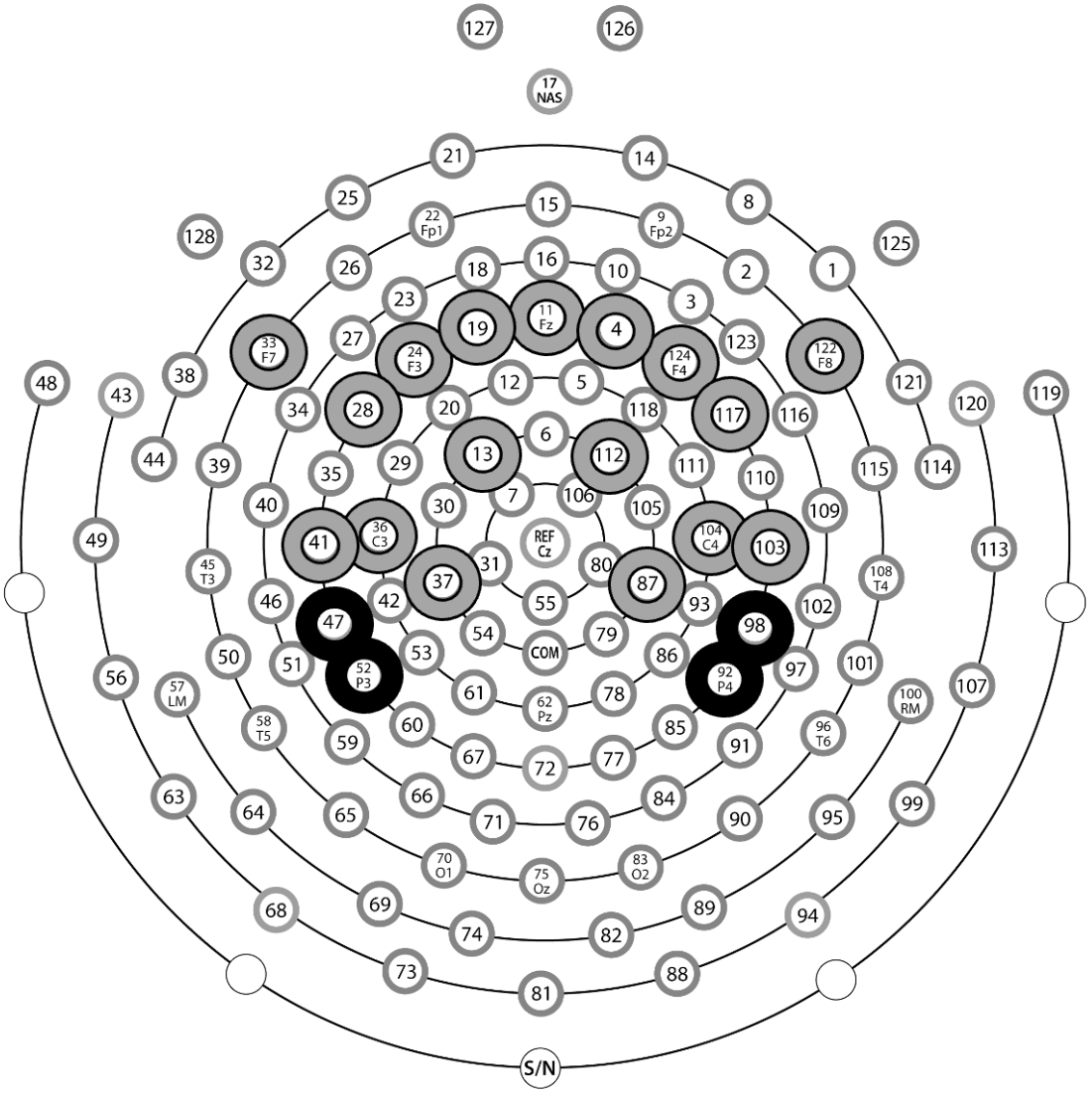
eTable 3. Bivariate correlations between screen time, relative theta, theta/beta ratio, and teacher-reported outcomes

	1	2	3	4	5	6	7
1. 12-month screen time	1						
2. Frontocentral relative theta	**0.36** (0.14, 0.57)	1					
3. Parietal relative theta	**0.37** (0.15, 0.59)	**0.90** (0.86, 0.95)	1				
4. Frontocentral theta/beta	**0.36** (0.16, 0.57)	**0.86** (0.81, 0.91)	**0.79** (0.69, 0.89)	1			
5. Parietal theta/beta	**0.35** (0.14, 0.57)	**0.80** (0.75, 0.85)	**0.88** (0.85, 0.91)	**0.90** (0.85, 0.95)	1		
6. Teacher-rated attention problems	**0.30** (0.07, 0.54)	0.06 (-0.29, 0.42)	0.03 (-0.30, 0.36)	0.14 (-0.29, 0.56)	0.09 (-0.29, 0.47)	1	
7. Teacher-rated executive control problems	**0.33** (0.10, 0.57)	-0.15 (-0.52, 0.21)	0.02 (-0.34, 0.39)	-0.09 (-0.56, 0.39)	0.02 (-0.44, 0.48)	**0.61** (0.48, 0.74)	1

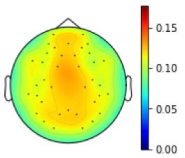
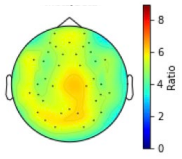
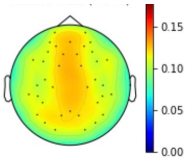
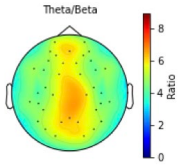
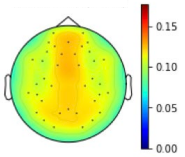
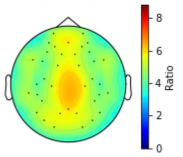
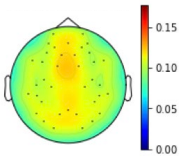
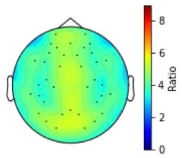
eFigure 1. Flowchart of participant inclusion and exclusion



eFigure 2. Processed frontocentral (grey) and parietal (black) EEG electrodes



eFigure 3. Brain topographic maps of 18-month relative theta and theta/beta ratio based on monthly household income

Household Income	Relative Theta (% Total Power)	Theta/Beta Ratio
<SGD 2000/month (n=27)		
SGD 2000-3999/month (n=54)		
SGD 3000-5999/month (n=31)		
≥SGD 6000/month (n=37)		

eFigure 4. A) Frontocentral and **B)** Parietal theta/beta ratio individually mediated the path from screen time to executive functions