Additional File 1

Supplementary Table 1. Characteristics of symptom clusters

	Chronbach alpha (IC 95%)	Correlation within cluster	Reported Very often or All the time			Difference Chi-square/ Fisher's Exact test p-value
			Overall	Women	Men	
Cluster 1: Extrapyramidal Impairment						
	0.91 (0.90-0.92)					
Pain in arms		0.80	44	28	16	0.19
			(11.5%)	(13.7%)	(9.0%)	
Pain in legs		0.80	75	52	23	0.003
			(19.6%)	(25.2%)	(13.1%)	
Drop things		0.75	53	37	16	0.017
			(13.9%)	(17.9%)	(9.2%)	
Feet tremors		0.77	25	13	12	0.873
			(6.6%)	(6.4%)	(6.8%)	
Stiff shoulders		0.75	51	33	18	0.099
			(13.4%)	(16.1%)	(10.2%)	
Burning feet		0.75	48	34	14	0.01
			(12.7%)	(16.8%)	(8.0%)	
Stumble		0.78	39	21	18	0.992
			(10.1%)	(10.2%)	(10.1%)	
Stop or freeze		0.74	14	10	4	0.275
			(3.7%)	(4.9%)	(2.3%)	
Fall		0.75	19	14	5	0.099
			(5.0%)	(6.8%)	(2.8%)	

	Chronbach alpha (IC 95%)	Correlation within cluster	Reported Very often or All the time			Difference Chi-square/ Fisher's Exact test p-value
			Overall	Women	Men	
Cluster 2: Sensory Impairment						
	0.94 (0.93-0.95)					
Numbness in hands		0.88	53	37	16	0.01
			(14.0%)	(18.1%)	(9.1%)	
Numbness in feet		0.89	56	34	22	0.268
			(14.7%)	(16.5%)	(12.5%)	
Dull feeling in hands		0.88	44	27	17	0.285
			(11.7%)	(13.3%)	(9.8%)	
Dull feeling in feet		0.87	46	30	16	0.102
			(12.1%)	(14.6%)	(9.1%)	
Tingling in hands		0.87	54	33	21	0.243
			(14.2%)	(16.1%)	(12.0%)	
Tingling in feet		0.87	53	34	19	0.1
			(13.8%)	(16.5%)	(10.7%)	

|	Chronbach alpha (IC 95%)	Correlation within cluster	Reported Very often or All the time			Difference Chi-square/ Fisher's Exact test p-value
			Overall	Women	Men	
Cluster 3 : Cranial nerve disturbances						
	0.85 (0.83-0.88)					
Loss of taste		0.85	23	17	6	0.053
			(6.0%)	(8.3%)	(3.4%)	
Loss of smell		0.82	26	16	10	0.423
			(6.8%)	(7.8%)	(5.7%)	
Difficulty swallowing		0.81	33	23	10	0.068
			(8.6%)	(11.2%)	(5.7%)	
Tingling around mouth		0.73	24	17	7 (	0.094
			(6.3%)	(8.3%)	4.0%)	
Choking		0.81	15	12	3	0.061
			(3.9%)	(5.8%)	(1.7%)	

	Chronbach alpha (IC 95%)	Correlation within cluster	Reported Very often or All the time			Difference Chi-square/ Fisher's Exact test p-value
			Overall	Women	Men	
Cluster 4: Gross motor impairment						
	0.89 (0.88-0.91)					
Difficulty walking 5 minutes without rest	0.91		38 (9.9%)	29 (14.0%)	9 (5.1%)	0.004
Difficulty climbing stairs	0.92		47 (12.3%)	37 (17.8%)	10 (5.68%)	0
Trouble lifting	0.89		77 (20.3%)	50 (24.5%)	27 (15.3%)	0.025
Trouble lifting 10 lbs	0.82		36 (9.5%)	32 (15.5%)	4 (2.3%)	0

	Chronbach alpha (IC 95%)	Correlation within cluster	Reported Very often or All the time			Difference Chi-square/ Fisher's Exact test p-value
			Overall	Women	Men	
Cluster 5: Neuro-cognitive deficits						
	0.82 (0.79-0.85)					
Trouble hearing	0.74		48	28	20	0.485
			(12.5%)	(13.6%)	(11.2%)	
Difficulty having his/her speech understood	0.77		27	17	10	0.424
			(7.1%)	(8.3%)	(5.7%)	
Difficulty pronouncing words	0.77		39	21	18	0.992
			(10.1%)	(10.1%)	(10.1%)	
Forget where to put things	0.79		76	50	26	0.018
			(19.8%)	(24.3%)	(14.7%)	
Forget doing things	0.8		35	23	12	0.158
			(9.1%)	(11.1%)	(6.8%)	

	Chronbach alpha (IC 95%)	Correlation within cluster	Reported Very often or All the time			Difference Chi-square/ Fisher's Exact test p-value
			Overall	Women	Men	
Cluster 6: Affect/Mood disorders						
	0.9 (0.89-0.91)					
Anxious		0.81	57	39	18	0.016
			(14.9%)	(18.9%)	(10.2%)	
Tired		0.81	111	74	37	0.001
			(28.9%)	(35.9%)	(20.9%)	
Irritable		0.81	50	36	14	0.006
			(13.1%)	(17.5%)	(7.9%)	
Depressed		0.77	58	36	22	0.151
			(15.4%)	(17.9%)	(12.6%)	
Difficulty concentrating		0.78	60	39	21	0.054
			(15.9%)	(19.2%)	(12.0%)	
Wake up at night		0.77	141	86	55	0.037
			(36.8%)	(41.6%)	(31.2%)	
Trouble falling asleep		0.75	138	74	64	0.901
			(36.0%)	(35.8%)	(36.4%)	
Doing nothing		0.72	65	45	20	0.005
			(17.0%)	(21.9%)	(11.2%)	

Supplementary Table 2. Descriptive characteristics of the composite variable in each cluster

Clusters	Component Score Mean, Median (min-max)			Wilcoxon p-value
	All	Women	Men	
Cluster 1 (Extrapyramidal impairment)	2.7, 2.2 (0-11.2)	3.0, 2.6 (0-1.2)	2.3, 1.7 (0-9.1)	0.002
Cluster 2 (Sensory impairment)	2.6, 2.4 (0-8.3)	2.8, 2.8 (0-8.3)	2.3, 2.1 (0-8.3)	0.012
Cluster 3 (Cranial nerve disturbances)	1.4, 0.9 (0-7.9)	1.6, 1.0 (0-7.9)	1.1, 0.4 (0-6.9)	0.017
Cluster 4 (Gross motor impairment)	1.4, 0.7 (0-6.6)	1.8, 1.1 (0-6.6)	1.0, 0.3 (0-6.2)	0.000
Cluster 5 (Neuro-cognitive deficits)	2.3, 2.1 (0-8.0)	2.4, 2.3 (0-8.0)	2.1, 2.0 (0-7.2)	0.199
Cluster 6 (Affect/Mood disorders)	4.3, 4.3 (0-10.4)	4.7, 4.9 (0-10.4)	3.8, 4.0 (0-10.1)	0.000

Supplementary Figure 1. Equivalent mean childhood hair Hg between 5 and 15 years of age with respect to reported childhood fish consumption at around 10 years old (n = 123).

Note: The fitted line represents second order polynomial (quadratic), with a shaded confidence band.
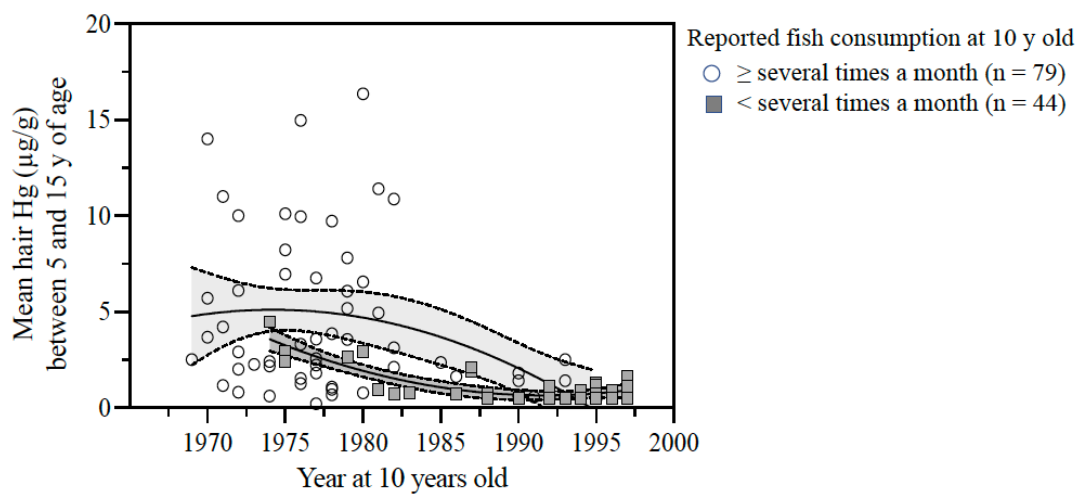
Supplementary Figure 2. Graphic outputs for cluster decision

2a. Plot of the aggregation levels of symptom clusters

2b. Plot of stability of the partitions of clusters

2c. Plot of dispersion of the adjusted Rand index
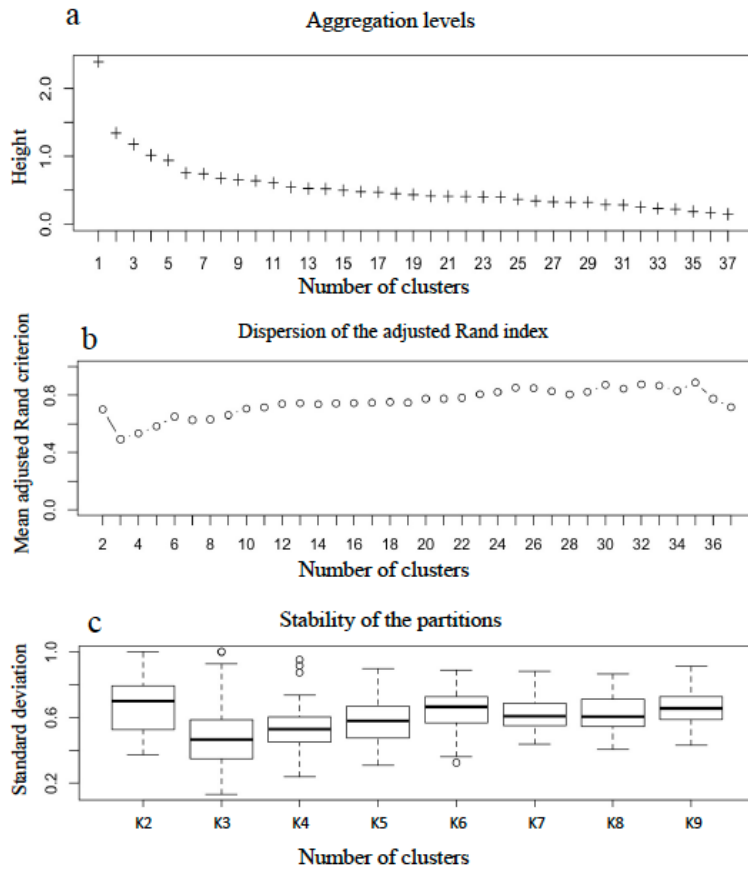
Supplementary Figures 3-7. SEM path diagrams linking retrospective latent Hg exposure and covariates to the latent symptoms cluster variables for Sensory Impairment (3), Cranial nerve disturbances (4), Gross motor impairment (5), Neuro-cognitive deficits (6) and Affect/Mood disorders (7). The latent variable (Latent Hg) binds prenatal, childhood Hg exposure and having had $\geq 5\mu g/g$ hair Hg at least once between 1970 and 1997.

Abbreviations: $\chi2/df$: Chi-square divided by the degrees of freedom ($\chi2/df$), CFI: Comparative Fit Index, TLI: Tucker Lewis Index, RMSEA: Root Mean Square Error of Approximation, SRMR: Standardized Root Mean Square Residual.

Supplementary Figures 8-12. SEM path diagrams linking retrospective Hg exposure parameters (prenatal, childhood Hg exposure, and having had $5\mu g/g$ hair Hg exposure at least once between 1970 and 1997) and covariates with latent symptoms cluster variables for Sensory Impairment (8), Cranial nerve disturbances (9), Gross motor impairment (10), Neuro-cognitive deficits (11), Affect/Mood disorders (12).

Abbreviations: $\chi2/df$: Chi-square divided by the degrees of freedom ($\chi2/df$), CFI: Comparative Fit Index, TLI: Tucker Lewis Index, RMSEA: Root Mean Square Error of Approximation, SRMR: Standardized Root Mean Square Residual.

Supplementary Figure 3. SEM path diagram linking retrospective latent Hg exposure and

covariates to the latent symptoms cluster variable for Sensory impairment
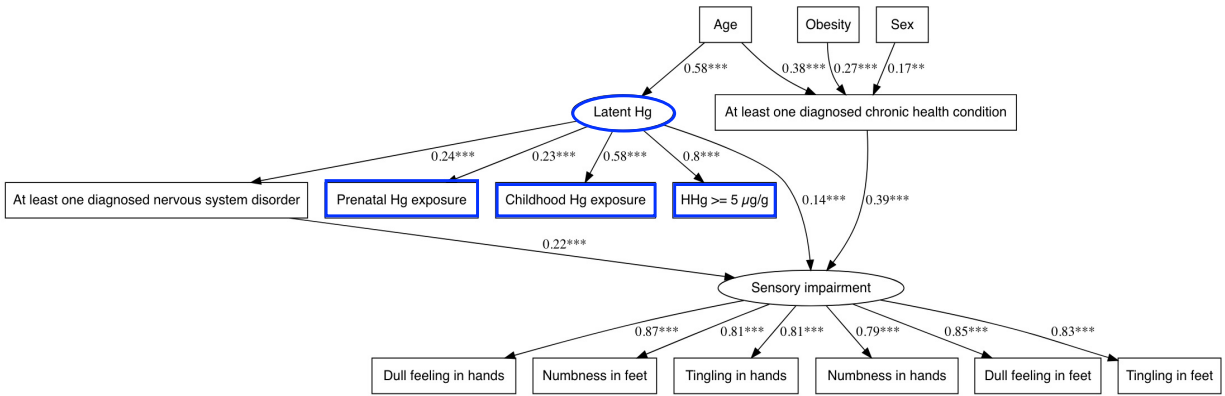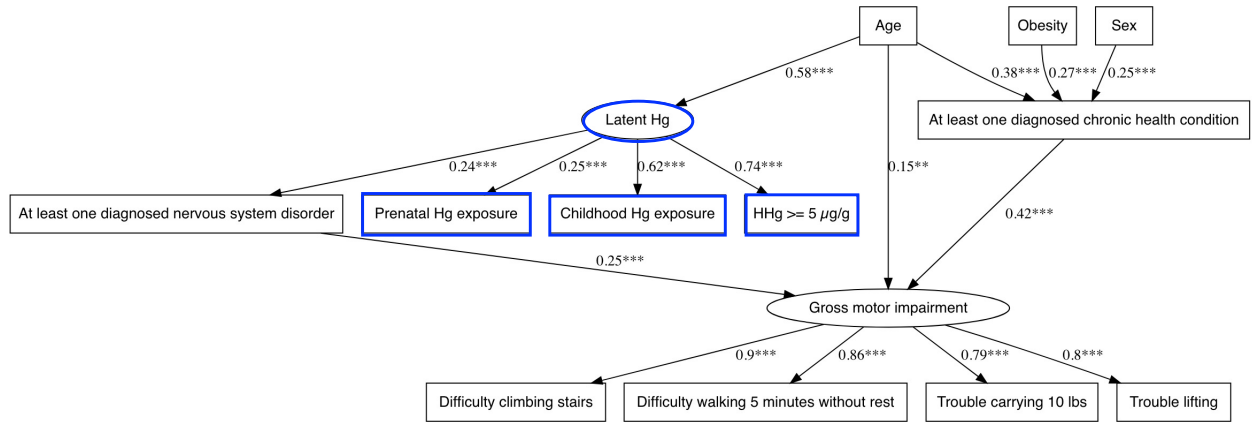

Goodness of fit: χ2/df=1.00, CFI=1.00, TLI=1.00, RMSEA=0.0 (0.01-0.04), SRMR=0.05

Supplementary Figure 4. SEM path diagram linking retrospective latent Hg exposure and

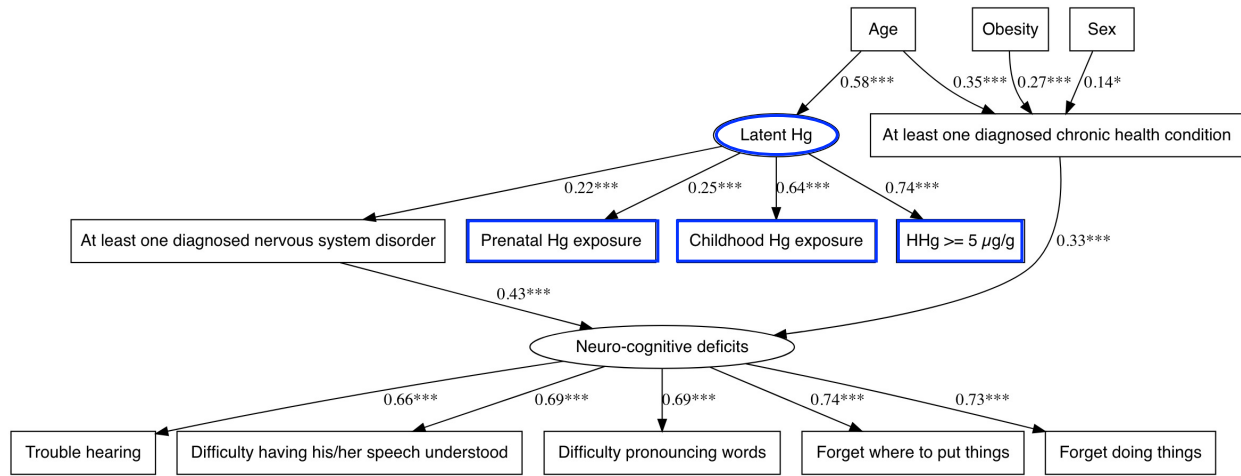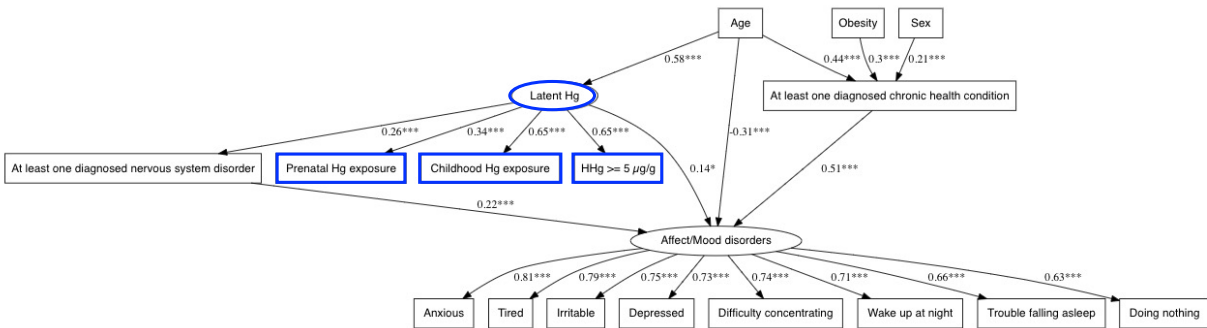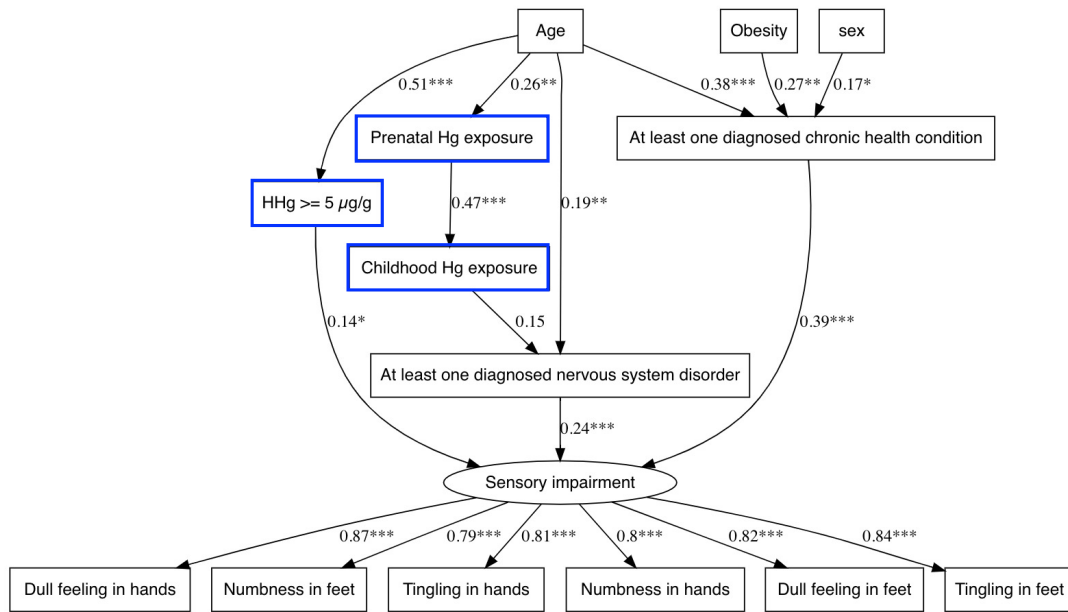covariates to the latent symptoms cluster variable for Cranial nerve disturbances
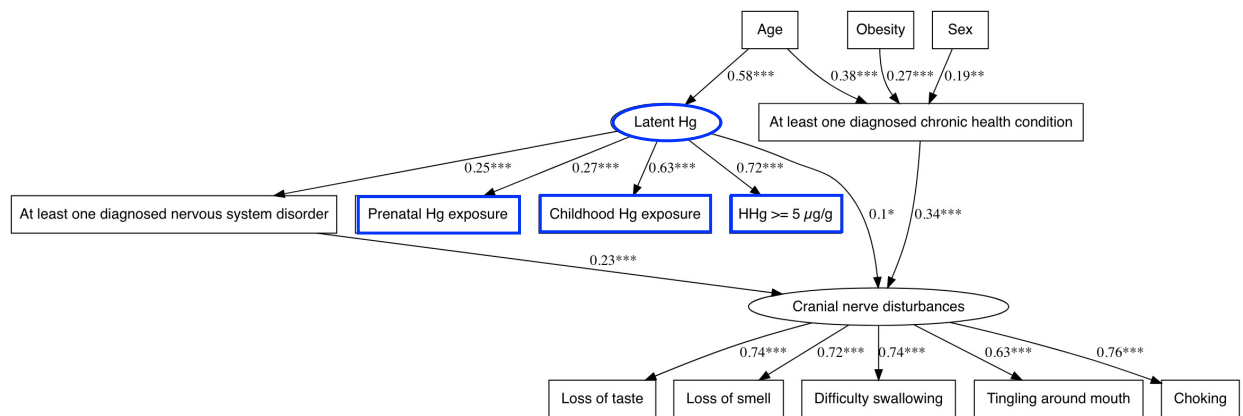
Goodness of fit: χ2/df=1.27, CFI=0.98, TLI=0.97, RMSEA=0.03 (0.00-0.05), SRMR=0.06

Supplementary Figure 5. SEM path diagram linking retrospective latent Hg exposure and

covariates to the latent symptoms cluster variable for Gross motor impairment

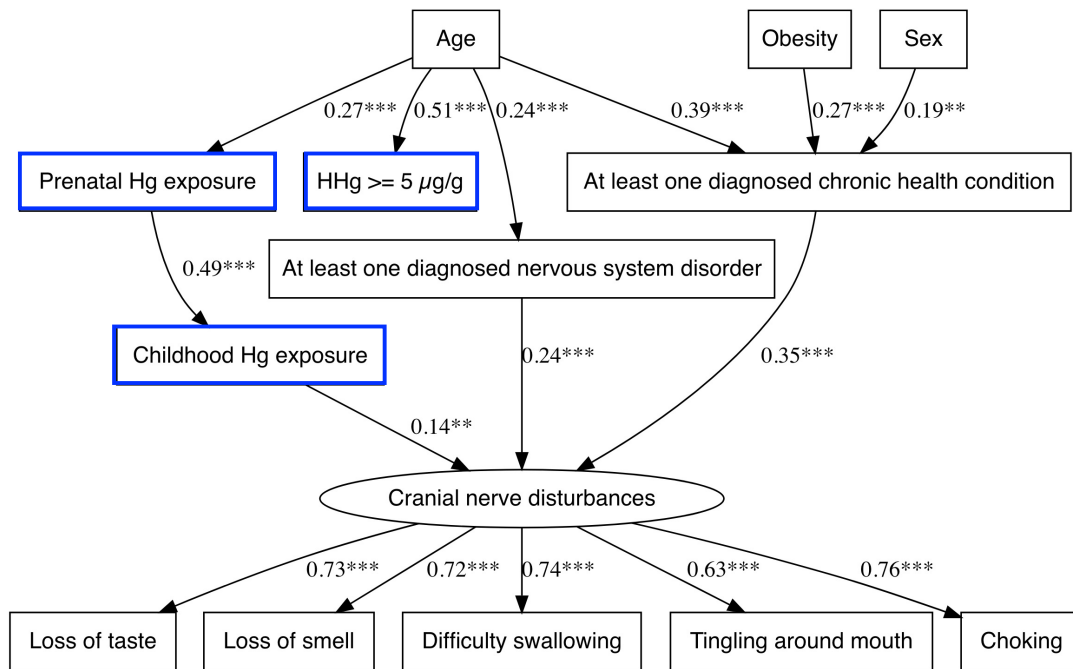Goodness of fit: χ2/df=1.46, CFI=0.98, TLI=0.97, RMSEA=0.04 (0.02-0.06), SRMR=0.06

Supplementary Figure 6. SEM path diagram linking retrospective latent Hg exposure and

covariates to the latent symptoms cluster variable for Neuro-cognitive deficits

Goodness of fit: χ2/df=1.45, CFI=0.97, TLI=0.96, RMSEA=0.04 (0.02-0.06), SRMR=0.06

Supplementary Figure 7. SEM path diagram linking retrospective latent Hg exposure and

covariates to the latent symptoms cluster variable for Affect/Mood disorders

Goodness of fit: χ2/df=1.33, CFI=0.99, TLI=0.98, RMSEA=0.04 (0.02-0.05), SRMR=0.06

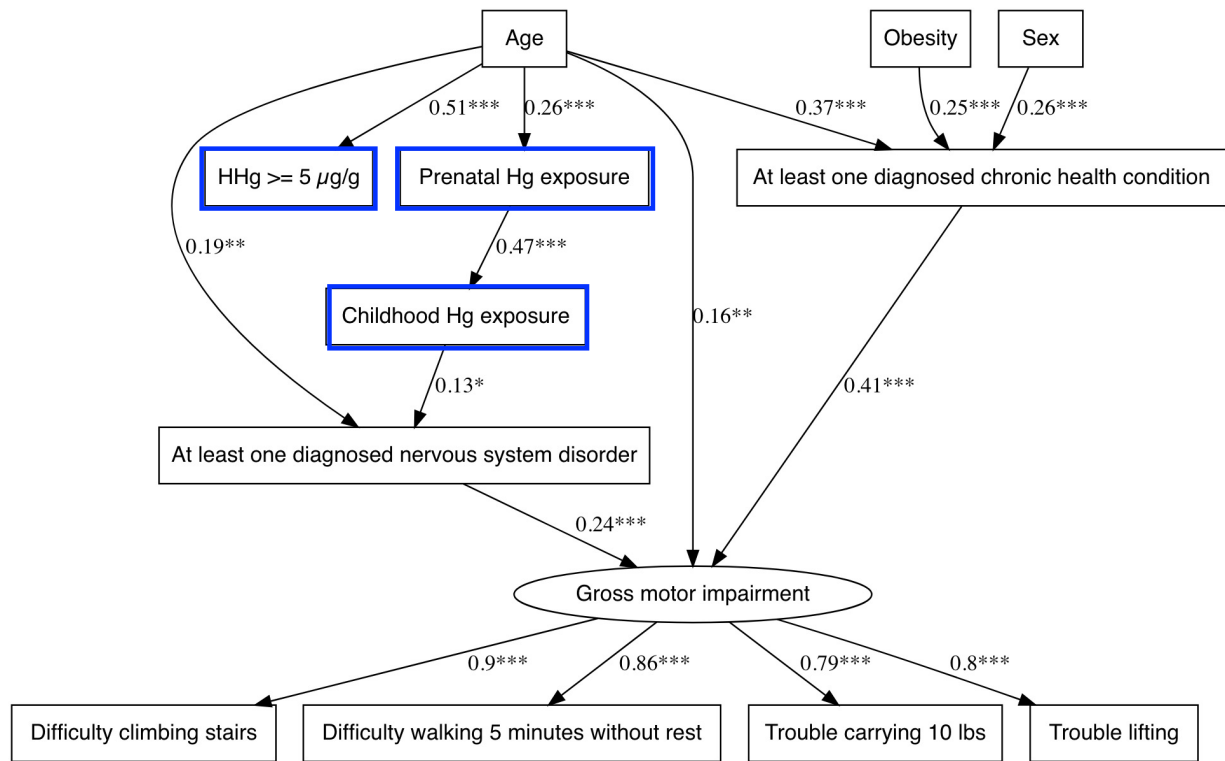**Supplementary Figure 8.** SEM path diagram linking retrospective Hg exposure parameters (prenatal and childhood Hg exposure, and having had ≥ 5μg/g hair Hg at least once between 1970 and 1997) and covariates to the latent symptoms cluster variable for Sensory impairment

Goodness of fit: $\chi 2$/df=1.72, CFI=0.97, TLI=0.97, RMSEA=0.05 (0.04-0.07), SRMR=0.07

Supplementary Figure 9. SEM path diagram linking retrospective Hg exposure parameters (prenatal and childhood Hg exposure, and having had ≥ 5µg/g hair Hg at least once between 1970 and 1997) and covariates to the latent symptoms cluster variable for Cranial nerve impairment
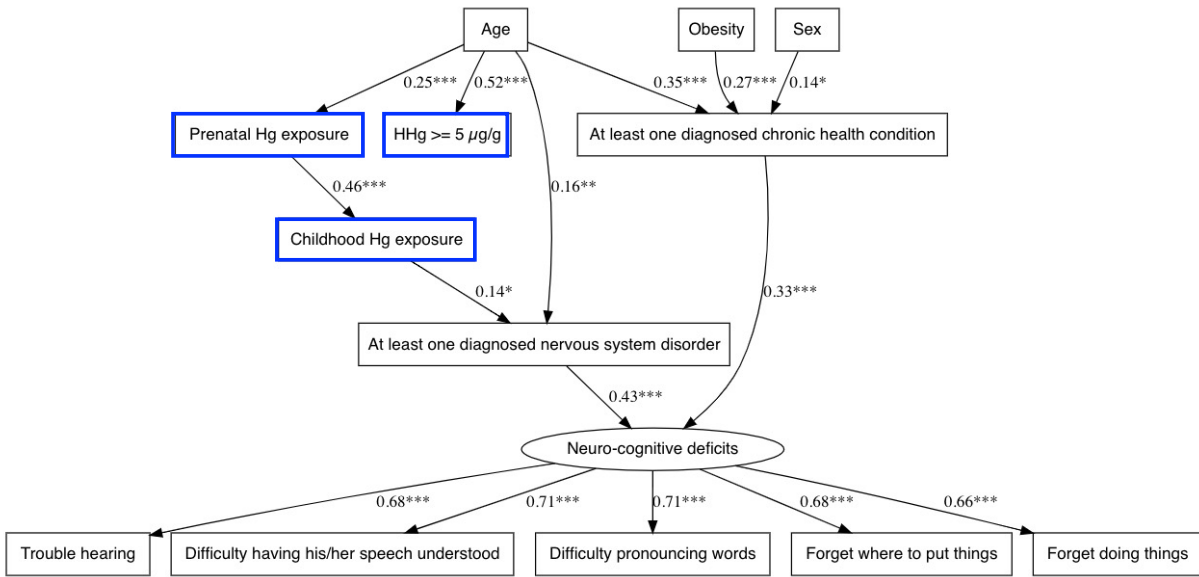

Goodness of fit: χ2/df=2.05, CFI=0.92, TLI=0.90, RMSEA=0.07 (0.05-0.08), SRMR=0.07

Supplementary Figure 10. SEM path diagram linking retrospective Hg exposure parameters (prenatal and childhood Hg exposure, and having had ≥ 5µg/g hair Hg at least once between 1970 and 1997) and covariates to the latent symptoms cluster variable for Gross motor impairment


Goodness of fit: χ2/df=2.47, CFI=0.93, TLI=0.91, RMSEA=0.08 (0.06-0.09), SRMR=0.08

Supplementary Figure 11. SEM path diagram linking retrospective Hg exposure parameters (prenatal and childhood Hg exposure, and having had ≥ 5µg/g hair Hg at least once between 1970 and 1997) and covariates to the latent symptoms cluster variable for Neuro-cognitive deficits

Goodness of fit: χ2/df=2.23, CFI=0.92, TLI=0.90, RMSEA=0.07 (0.05-0.09), SRMR=0.08

Supplementary Figure 12. SEM path diagram linking retrospective Hg exposure parameters

(prenatal and childhood Hg exposure, and having had ≥ 5μg/g hair Hg at least once between

1970 and 1997) and covariates to the latent symptoms cluster variable for Affect/Mood disorders
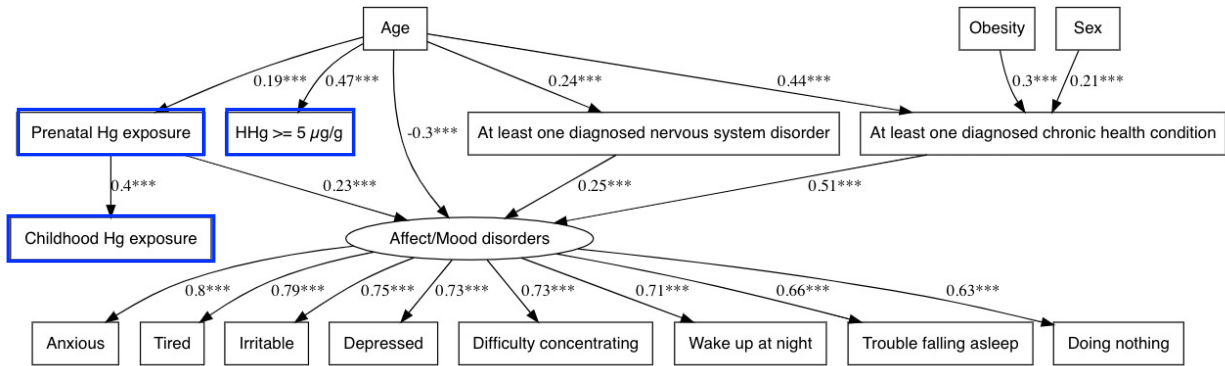
Goodness of fit: χ2/df=1.07, CFI=0.99, TLI=0.98, RMSEA=0.02 (0.00-0.04), SRMR=0.05