

## SUPPLEMENTARY MATERIALS

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**Supplementary Table 3:** Linear mixed models to test effects of reading problems at age 11 on memory and processing speed trajectories from age 43 to 69 (with childhood cognition as a covariate).

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**Supplementary Table 6:** Path model showing direct effects of reading problems on ACE-III outcomes at age 69 and indirect effects through educational attainment (with childhood cognition as a covariate).

**Supplementary Table 7:** Path model showing direct effects of continuous reading problems on ACE-III outcomes at age 69 and indirect effects through educational attainment.

**Supplementary Table 1:** Correlation matrix of key predictors and covariates.

	<b>Reading Problems</b>	<b>Sex</b>	<b>Education</b>	<b>Childhood socioeconomic position</b>	<b>Adult socioeconomic position</b>	<b>Adult affective symptoms</b>	<b>Childhood cognition</b>
<b>Reading Problems</b>	1	-0.04, $p=.007$	-0.26, $p<.001$	0.18, $p<.001$	0.23, $p<.001$	0.05, $p<.001$	-0.41, $p<.001$
<b>Sex</b>	-0.04, $p=.007$	1	-0.07, $p<.001$	0.01, $p<.64$	0.09, $p<.001$	-0.06, $p<.001$	0.03, $p=.08$
<b>Education</b>	-0.26, $p<.001$	-0.07, $p<.001$	1	-0.43, $p<.001$	-0.53, $p<.001$	-0.18, $p<.001$	0.55, $p<.001$
<b>Childhood socioeconomic position</b>	0.18, $p<.001$	0.01, $p<.64$	-0.43, $p<.001$	1	0.34, $p<.001$	0.11, $p<.001$	-0.39, $p<.001$
<b>Adult socioeconomic position</b>	0.23, $p<.001$	0.09, $p<.001$	-0.53, $p<.001$	0.34, $p<.001$	1	0.18, $p<.001$	-0.46, $p<.001$
<b>Adult affective symptoms</b>	0.05, $p<.001$	-0.06, $p<.001$	-0.18, $p<.001$	0.11, $p<.001$	0.18, $p<.001$	1	-0.14, $p<.001$
<b>Childhood cognition</b>	-0.41, $p<.001$	0.03, $p=.08$	0.55, $p<.001$	-0.39, $p<.001$	-0.46, $p<.001$	-0.14, $p<.001$	1

**Supplementary Table 2:** Missing data analysis.

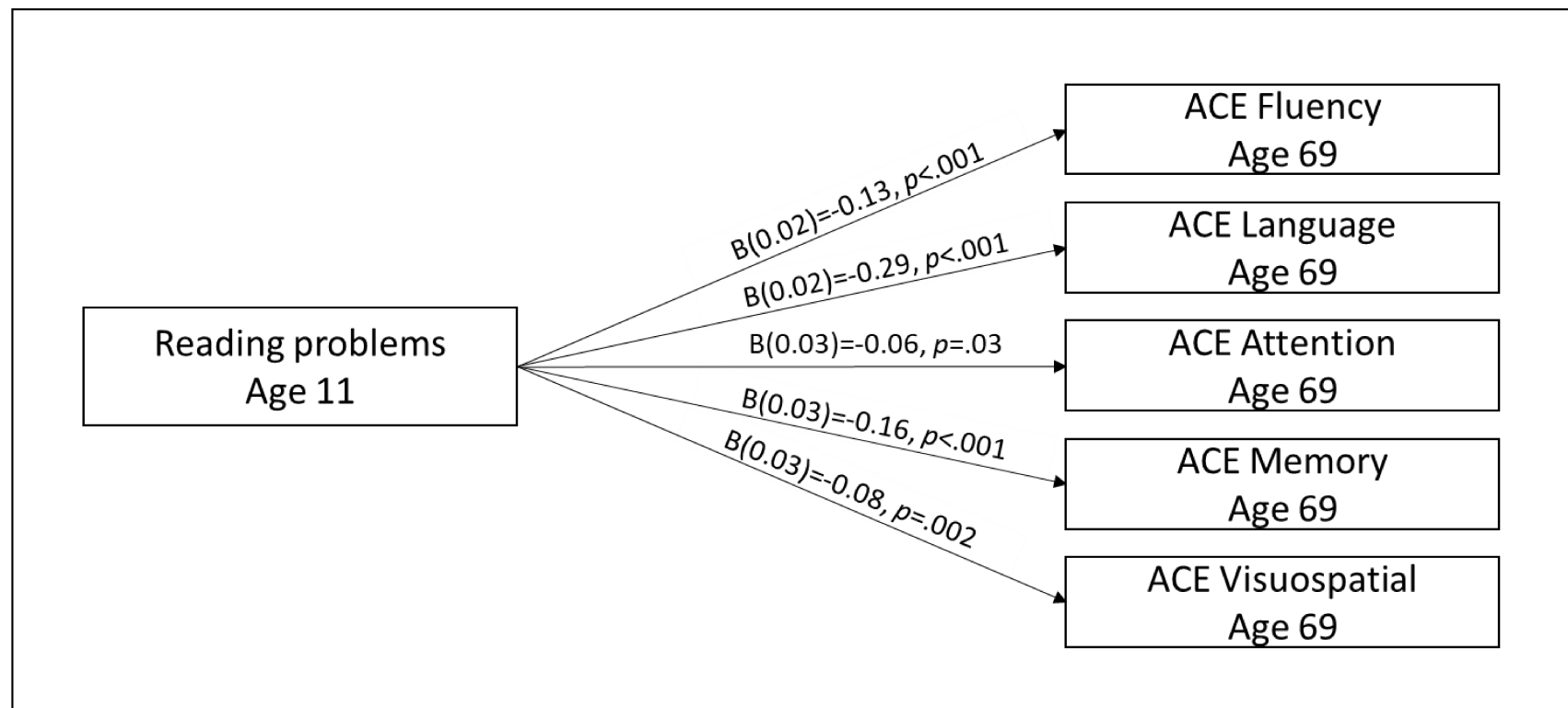
		<b>t/X<sup>2</sup></b>	<b>df</b>	<b>p</b>
Verbal memory				
	Age 43	-9.77	2320.05	<.001
	Age 53	-8.87	2338.73	<.001
	Age 60-64	-4.40	2148	<.001
	Age 69	-4.18	2072	<.001
Letter search speed				
	Age 43	-0.82	3129	.41
	Age 53	-0.70	2930	.48
	Age 60-64	-0.48	2180	.63
	Age 69	-0.57	2109	.57
ACE-III Total score				
		-3.37	1381.53	.001
Reading problems				
		30.12	1	<.001
Sex				
		9.94	1	.002
Childhood cognition				
		-9.33	1968.95	<.001
Childhood socioeconomic position				
		42.87	5	<.001
Adulthood socioeconomic position				
		93.91	5	<.001
Education				
		107.07	2	<.001
Adult affective symptoms				
		1.35	2123	.18

**Supplementary Table 3:** Linear mixed models to test effects of reading problems at age 11 on memory and processing speed trajectories from age 43 to 69 (with childhood cognition as a covariate).

		<b>Verbal memory (N=1726)</b>	<b>Processing speed (N=1730)</b>
<b>Intercept</b>			
	Reading problems	-4.28 (1.34), .001*	-9.28 (18.44), .62
	Sex	1.22 (0.58), .04	41.20 (8.30), <.001
	Education	2.22 (0.43), <.001	18.93 (6.18), .002
	Childhood cognition	1.80 (0.44), <.001	-1.68 (6.33), .79
	Childhood SEP**	0.31 (0.24), .20	0.65 (3.42), .85
	Adulthood SEP**	-0.92 (0.27), .001	-0.34 (3.88), .93
	Adulthood affective symptoms	0.12 (0.08), .17	1.09 (1.20), .36
<b>Slope</b>			
	Reading problems	0.03 (0.02), .21	0.33 (0.31), .28
	Sex	0.02 (0.01), .05	-0.43 (0.14), .002
	Education	-0.01 (0.01), .07	-0.20 (0.10), .05
	Childhood cognition	0.001 (0.01), .88	0.15 (0.10), .16
	Childhood SEP**	-0.01 (0.004), .03	-0.05 (0.06), .39
	Adulthood SEP**	0.01 (0.005), .25	-0.02 (0.06), .74
	Adulthood affective symptoms	-0.004 (0.001), .007	-0.03 (0.02), .14

\* b (SE), *p*

\*\* Reverse coded

**Supplementary Figure 1:** Path model of reading problems at age 11 on ACE outcomes at age 69

\*Standardised beta presented.

\*All pathways in the model were adjusted for all key covariates.

**Supplementary Table 4:** Path model showing direct effects of reading problems on ACE-III outcomes at age 69 and indirect effects through educational attainment.

	<b>Fluency</b>	<b>Language</b>	<b>Attention</b>	<b>Memory</b>	<b>Visuospatial</b>
Reading prob -> Cognition	-1.20 (0.21), <.001*	-1.39 (0.12), <.001	-0.45 (0.20), .03	-1.98 (0.30), <.001	-0.44 (0.14), .001
Reading prob -> Education -> Cognition	-0.20 (0.05), <.001	-0.09 (0.02), <.001	-0.08 (0.03), .01	-0.26 (0.06), <.001	-0.13 (0.03), <.001

Model fit statistics: N=1776;  $X^2(1)=2.39$ ,  $p=.12$ ; CFI=0.999; TLI=0.970; RMSEA=0.028.

Missing data dealt with using FIML

\* b (SE),  $p$

**Supplementary Table 5:** Path model to test effects of reading problems at age 11 on ACE-III scores at age 69 (with childhood cognition as a covariate).

	<b>Fluency</b>	<b>Language</b>	<b>Attention</b>	<b>Memory</b>	<b>Visuospatial</b>
Reading problems	-0.71 (0.21), .001*	-1.19 (0.12), <.001	-0.27 (0.21), .19	-1.48 (0.31), <.001	-0.21 (0.14), .13
Sex	0.29 (0.10), .003	0.05 (0.05), .39	-0.34 (0.09), <.001	0.61 (0.14), <.001	-0.15 (0.06), .02
Education	0.30 (0.07), <.001	0.14 (0.04), .001	0.13 (0.07), .07	0.45 (0.10), <.001	0.22 (0.05), <.001
Childhood cognition	0.63 (0.07), <.001	0.27 (0.04), <.001	0.23 (0.07), .001	0.63 (0.11), <.001	0.29 (0.05), <.001
Childhood SEP	-0.08 (0.04), .03	-0.03 (0.02), .13	-0.01 (0.04), .91	-0.11 (0.06), .06	-0.05 (0.03), .09
Adulthood SEP	-0.12 (0.05), .006	-0.08 (0.03), .001	-0.08 (0.04), .08	-0.20 (0.07), .002	-0.08 (0.03), .007
Affective symptoms	-0.01 (0.01), .36	-0.02 (0.01), .03	-0.01 (0.01), .63	-0.07 (0.02), <.001	-0.01 (0.01), .16

\* Model fit statistics: N=1699;  $X^2(1)=1.18$ ,  $p=.28$ ; CFI=1.000; TLI=0.995; RMSEA=0.010.

\* b (SE),  $p$

**Supplementary Table 6:** Path model showing direct effects of reading problems on ACE-III outcomes at age 69 and indirect effects through educational attainment (with childhood cognition as a covariate).

	<b>Fluency</b>	<b>Language</b>	<b>Attention</b>	<b>Memory</b>	<b>Visuospatial</b>
Reading prob -> Cognition	-0.71 (0.21), .001*	-1.20 (0.12), <.001	-0.26 (0.21), .21	-1.50 (0.30), <.001	-0.22 (0.14), .11
Reading prob -> Education -> Cognition	-0.04 (0.02), .08	-0.02 (0.01), .09	-0.02 (0.01), .20	-0.06 (0.03), .08	-0.03 (0.02), .08

\* Model fit statistics: N=1776;  $\chi^2(1)=1.00$ ,  $p=.32$ ; CFI=1.000; TLI=1.000; RMSEA=0.001.

\* b (SE),  $p$



**Supplementary Table 7:** Path model showing direct effects of continuous reading problems on ACE-III outcomes at age 69 and indirect effects through educational attainment.

	<b>Fluency</b>	<b>Language</b>	<b>Attention</b>	<b>Memory</b>	<b>Visuospatial</b>
Reading prob -> Cognition	0.06 (0.01), <.001*	0.05 (0.003), <.001	0.02 (0.01), <.001	0.09 (0.01), <.001	0.03 (0.004), <.001
Reading prob -> Education -> Cognition	0.01 (0.002), <.001	0.003 (0.001), .005	0.003 (0.002), .07	0.01 (0.003), <.001	0.01 (0.001), <.001

Model fit statistics: N=1776;  $\chi^2(1)=0.78$ ,  $p=.38$ ; CFI=1.000; TLI=1.004; RMSEA=0.000.

Missing data dealt with using FIML

\* b (SE),  $p$