

Supplementary Online Content

Morales-Muñoz I, Broome MR, Marwaha S. Association of parent-reported sleep problems in early childhood with psychotic and borderline personality disorder symptoms in adolescence. *JAMA Psychiatry*. Published online July 1, 2020. doi:10.1001/jamapsychiatry.2020.1875

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

Appendix. Further Details of ALSPAC Cohort

The initial number of pregnancies enrolled was 14,541 (for these at least one questionnaire was returned or a “Children in Focus” clinic had been attended by 19/07/99). Of these initial pregnancies, there was a total of 14,676 fetuses, resulting in 14,062 live births and 13,988 children who were alive at 1 year of age. When the oldest children were approximately 7 years of age, an attempt was made to bolster the initial sample with eligible cases who had failed to join the study originally. As a result, in our study, as some variables were collected from the age of seven onwards there were data available for more than the 14,541 pregnancies mentioned above.

eTable 1. Description of the Variables, Measures and Questionnaires Used at Each Time Point

			Pregnancy	Birth	6mo	18mo	24mo	30mo	3.5y	4y	4.8y	5.8y	6.8y	10y	11-12y	12-13y
Variable	Measure	Questionnaire														
Sex	Parent-reported			x												
Prematurity	Parent-reported			x												
Maternal age born	Parent-reported			x												
Family adversity	Parent-reported	FAI	x				x			x						
Emotional temperament	Parent-reported	CTS					x									
Childhood abuse	Parent-reported					x			x		x	x	x			
Regular sleep routines	Parent-reported				x	x		x	x		x	x				
Night sleep duration	Parent-reported				x	x		x	x		x	x				
Bedtime	Parent-reported				x	x		x	x		x	x				
Night awakenings	Parent-reported				x	x		x	x		x	x				
Depression	Face-to-face interview	MFQ												x		
BPD symptoms	Face-to-face interview	UK Childhood Interview for DSM-IV BPD													x	
Psychotic symptoms	Face-to-face interview	PLIKSi														x

BPD=Borderline personality disorder; FAI=Family Adversity Index; CTS=Carey Temperament Scale; MFQ=Mood and Feelings Questionnaire; PLIKSi= Psychosis-Like Symptom interview

eTable 2. Differences in Sociodemographic and Clinical Variables Between Nonparticipating and Participating Subjects in the Study

	Non-participating group in the study		Participating group in the study		Non-participating versus participating	
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>OR (95% CI)</i>	<i>p</i>
Maternal age when born	27.73	4.13	29.05	4.16	1.01 (0.99, 1.02)	0.302
Birth weight, grams	3356.04	605.96	3415.35	543.49	1.00 (0.99, 1.01)	0.602
Family Adversity score	4.83	3.40	3.95	3.62	0.96 (0.94, 0.97)	<0.001
Emotional Temperament score	39.81	6.31	39.21	7.53	1.00 (0.99, 1.01)	0.513
Depression 10 years score	4.21	1.48	4.02	3.22	0.97 (0.95, 0.99)	0.006
	Non-participating group in the study		Participating group in the study			
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>		
Sex Male / Female	4754 / 4194	53.13 / 46.87	3535 / 3667	49.08 / 50.92	0.77 (0.67, 0.88)	<0.001
Premature Yes / No	531 / 7912	6.29 / 93.71	325 / 6877	4.51 / 95.49	0.91 (0.65, 1.28)	0.585
Childhood abuse Yes / No	543 / 5063	9.69 / 90.31	674 / 5573	10.79 / 89.21	0.80 (0.64, 1.01)	0.063

eTable 3. Estimates of Total, Direct, and Indirect Effects

Total effects													
	FAI	Child abuse	Premature	Sex	Maternal age born	Emotional temperament	Regular sleep routines 3.5y	Night waking 18mo	Regular sleep routines 6mo	Bedtime 3.5y	Regular sleep routines 5.8y	Night sleep 3.5y	Depression 10y
Depression 10 y	0.170	0.046	0.030	- 0.042	-0.048	0.050	0.003	-0.031	-0.009	0.020	-0.041	-0.014	0.000
BPD 11-12 y	0.113	- 0.003	0.026	0.000	-0.025	0.037	0.001	-0.009	-0.003	0.012	-0.012	-0.039	0.284
Psychosis 12-13 y	0.091	0.018	0.007	0.053	-0.021	0.002	0.039	0.035	-0.055	0.003	-0.095	-0.002	0.153
Direct effects													
Depression 10 y	0.170	0.046	0.030	- 0.042	-0.048	0.050	0.003	-0.031	-0.009	0.02	-0.041	-0.014	0.000
BPD 11-12 y	0.065	- 0.016	0.017	0.012	-0.012	0.022	0.000	0.000	0.000	0.006	0.000	-0.035	0.284
Psychosis 12-13 y	0.065	0.011	0.003	0.06	-0.013	-0.006	0.038	0.04	-0.054	0.000	-0.089	0.000	0.153
Indirect effects													
Depression 10 y	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BPD 11-12 y	0.048	0.013	0.009	- 0.012	-0.014	0.014	0.001	-0.009	-0.003	0.006	-0.012	-0.004	0.000
Psychosis 12-13 y	0.026	0.007	0.005	- 0.006	-0.007	0.008	0.001	-0.005	-0.001	0.003	-0.006	-0.002	0.000

FAI=family adversity index; Child abuse= childhood abuse; BPD=borderline personality disorder

eFigure. Causal Diagram to Represent Temporal Ordering, Including Confounders

