

# Infant sleep problems: natural history and predictors

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# Background

- Wave 1 data:
  - 17% of parents reported a moderate/severe infant sleep problem (SP)
  - SPs were associated with poorer maternal and paternal physical health
  - SPs more than quadrupled the risk of serious psychological illness in mothers with no history of depression



# Background

- 20% to 50% of infant SPs resolve by the 2<sup>nd</sup>/3<sup>rd</sup> year of life
- Over same period, up to 20% of infants develop *new* SPs
- SPs in preschool children associated with
  - poorer QoL & behaviour
  - increased risk of injury & ADHD diagnosis



# Predictors of Persistent Infant SPs

- Child
  - difficult temperament
- Mother
  - depression
  - hostile thoughts around settling
  - use of physical strategies to settle baby (rocking etc)
  - unaccustomed absence



# Predictors of Persistent Infant SPs

- **Father**
  - no data
  
- **Parenting style**
  - no data



# Aims

- To determine
  - the proportions of infants with persistent, resolving, incident and no sleep problems by 2.5-3.5 years of age
  - infant and parent factors that predict development of *incident* sleep problems
  - the relative contribution of parenting style and parent mental health to *persistence* of sleep problems



# Hypotheses

- Most infant SPs will resolve
- Predictors of new *or* persistent SPs:
  - serious parent mental illness
  - greater maternal separation anxiety
  - more hostile parenting at W1



# Hypotheses (2)

- Maternal predictors stronger than paternal
- Relationships would hold even after controlling for
  - child age & gender
  - household financial stress
  - parent mental health & parenting at W2



# Measures

- Primary outcome
  - parent 1 report of child sleep problem  
dichotomised none/mild v moderate/severe
- Confounders
  - parent mental health (K6 < 19)
  - hostile parenting (dichotomised top 1/3<sup>rd</sup>)
  - maternal separation anxiety (continuous)
  - partner support (dichotomised  
never/rarely/sometimes v often/always)



# Methods

- Proportion of children from Wave 1 to 2 (n, %) with incident, resolved, persistent and no SPs
- Subgroup of infants with no SP at Wave 1



unadjusted and adjusted logistic regressions  
for predictors of new SP



# Methods (2)

## Subgroup of infants with SP at Wave 1



unadjusted and adjusted logistic regressions  
for predictors of persistent SP

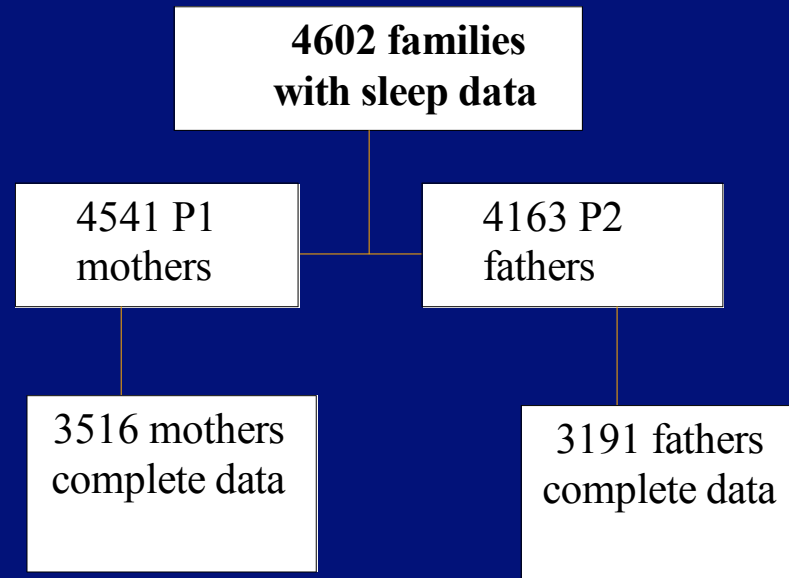


# Logistic Regressions

- Series of regressions controlling for:
  - maternal W1 variables
  - maternal W1 and W2 variables
  - paternal W1 variables
  - paternal W1 and W2 variables
  - mat and pat variables combined at p value  $\leq 0.2$  in adjusted analyses above



# Results



# Results

- Parents who remained in the study vs those who did not were more likely to report
  - less financial stress
  - fewer severe child sleep problems at W1



# Sleep problems

- Overall sample (n=4602)
  - 75.2% had no SP at either time point
  - 12.5% SPs resolved
  - 7.7% developed new (incident) SPs
  - 4.5% had persistent SPs



# Sleep problems

- Of those with an initial SP, 36% persisted (208/577)
- Of those with no initial SP, 10% developed a new SP (356/3461)



# Maternal predictors of persistent SPs

	Unadjusted		Adjusted	
	OR	p	OR	p
<b>Wave 1</b>	<b>N = 603</b>		<b>N = 603</b>	
serious mental illness	1.69	0.16	1.71	0.16
hostile parenting	1.22	0.29	1.18	0.39
separation anxiety	0.96	0.77	0.97	0.83
poor partner support	1.42	0.15	1.37	0.20
<b>Child</b>				
special health care needs	1.43	0.23	1.42	0.26



# Maternal predictors of persistent SPs

	Unadjusted		Adjusted	
	OR	p	OR	p
	N = 456		N = 456	
<b>Wave 2</b>				
<b>Maternal</b>				
serious mental illness	2.11	0.25	1.25	0.77
hostile parenting	1.78	0.009	1.87	0.01
poor partner support	1.77	0.11	1.86	0.13
<b>Child</b>				
special health care needs	3.30	<0.001	3.24	<0.001



# Paternal predictors of persistent SPs

- For paternal predictors  
only child special health care needs, as reported by the father, was a significant predictor of persistent infant sleep problems (OR (95% CI) 4.09 (2.10, 7.99)  $p < 0.001$ )



# Overall predictors of persistent SPs

- Significant predictors:
  - maternal hostile parenting at W2 (OR 1.67)
  - child special health care needs (OR 3.23)
- Families in more financial stress were also more likely to report persistent SPs (OR 2.15)



# Maternal predictors of new SPs

Wave 1	Unadjusted		Adjusted	
	OR	p	OR	p
	N = 2900		N = 2900	
<b>Maternal</b>				
serious mental illness	2.21	0.009	1.83	0.05
hostile parenting	1.09	0.53	1.14	0.36
separation anxiety	1.16	0.09	1.13	0.17
poor partner support	1.66	0.005	1.58	0.01
<b>Child</b>				
special health care needs	2.20	0.001	2.23	0.001



# Maternal predictors of new SPs

	Unadjusted N = 2194		Adjusted N = 2194	
	OR	p	OR	p
<b>Wave 1</b>				
serious mental illness	3.07	0.001	1.96	0.08
hostile parenting	1.15	0.39	1.01	0.93
separation anxiety	1.21	0.06	1.17	0.13
poor partner support	2.58	<0.001	2.54	0.001
<b>Child</b>				
special health care needs	1.95	0.001	1.76	0.01
<b>Wave 2</b>				
serious mental illness	3.28	0.004	1.82	0.18
hostile parenting	1.96	<0.001	1.89	<0.001
poor partner support	1.38	0.22	1.03	0.92



# Paternal predictors of new SPs

	Unadjusted N = 2005		Adjusted N = 2005	
	OR	p	OR	p
<b>Wave 1</b>				
serious mental illness	1.58	0.30	1.58	0.32
hostile parenting	1.06	0.71	0.97	0.85
<b>Child</b>				
special health care needs	2.26	0.003	2.35	0.003
<b>Wave 2</b>				
serious mental illness	0.54	0.40	0.45	0.28
hostile parenting	1.72	0.001	1.78	0.001



# Overall predictors of new SPs

- Significant predictors after controlling for potential confounders were:
  - child special health care needs (OR 2.4)
  - maternal mental illness at Wave 1 (OR 2.3)
  - maternal hostile parenting at Wave 2 (OR 1.7)
  - paternal hostile parenting at Wave 2 (OR 1.5)



# Limitations

- Results less likely to generalise to families with
  - more financial stress
  - severe child SPs
- Large drop-out, need to impute missing data?



# Clinical messages

- Children with special health care needs
  - ask families about their child's sleep; offer help
- Toddlers with SPs
  - ask about parenting and if hostile, offer help with parenting
- New child sleep problem
  - ask about maternal mental health; offer help

