

# Long-term impact of an infant sleep intervention

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# Background

- 30-45% Australian parents report infant sleep problems aged 6 -12 months
  - frequent night waking
  - sleep onset delay
- 15% Australian mothers develop PND
  - reluctant to accept diagnosis
  - reluctant to take antidepressants
- Major overlap between PND and sleep problems
  - 67% with infant sleep problems also report PND
  - sleep problems double the risk of PND



# The Infant Sleep Study



- Community-based, cluster RCT
- Universal recruitment at age 4 months (n=739)
- 328 of 695 families at age 7 months reported infant sleep problem and entered RCT
- Behavioural strategies from trained nurse at 8 -10 months
  - controlled crying
  - bedtime routines
  - camping out
- Control families offered usual care



# Short term results

- 4 months post-randomisation, intervention vs control group mothers were:
  - 53% less likely to report infant sleep problems
  - 44% less likely to report poor sleep quality
  - 42% less likely to report inadequate sleep quantity
- Mean EPDS lower in intervention than control group (5.9 vs 7.2,  $p=.001$ )
- Intervention saved money

Hiscock et al *Arch Dis Child* 2006



# Effects of behavioral strategies

- Long-term effects of behavioural sleep interventions unclear
- Australian Infant Mental Health Assc<sup>n</sup> 2004:
  - ‘...harmful to child’s developing brain and the mother-child relationship’
- Quality of data poor
  - case reports, extrapolated from trauma literature
  - no controlled trials



# Aims

- To quantify possible harms at age 2 years of behavioural sleep interventions on:
  - child behavior (depression, anxiety)
  - mother-child attachment
  - parenting
- To quantify possible benefits to the child and mother



# Methods

- Follow up survey of original families when children aged 2 years
- sleep problem (yes/no)
- Child Behavior Checklist (CBCL 1.5- 5 yrs)
- Edinburgh Postnatal Depression Scale (EPDS)
  - score > 9 indicative of depression
- Parenting Behavior Checklist
  - harsh/abusive and warmth subscales
- mother-child relationship
  - study designed, 10-point scale, 1= 'relationship much worse', 10='relationship much better'



# Analysis

- Intention to treat
- Intervention vs control, adjusting for known confounders
- To allow for clustering:
  - random effects linear regression (continuous outcomes)
  - marginal logistic regression (dichotomous outcomes)



	Intervention n=143	Control n=129
Sleep problem (%)		
resolved	73	67
persistent	11	22
EPDS > 9 (%)	15	26*
CBCL (mean)		
externalising	49.8	49.2
internalising	46.5	46.3
Parenting (mean)		
warm	52.7	54.7
harsh	42.5	42.0

\*p=.009



# Mother-child relationship

- 100/174 mothers took up the intervention
  - 50 chose controlled crying
  - 7 chose camping out
  - 20 chose other eg positive bedtime routine, management of dummy
  - 20 no clear choice
- 85% reported a positive intervention effect on the mother-child relationship
  - median 6.2, IQR =5-8.2
  - no score < 4.8



# Summary: findings at 2 years

- A brief behavioural sleep intervention delivered at 8 months results in:
  - slightly fewer persistent child sleep problems
  - 20% relative reduction in maternal depression
  - no adverse effects on child behaviour or parenting
  - maternal report of improved mother-child relationship



# Limitations (1)

- 82% response rate
  - very high for a public health intervention
  - possible loss of generalisability, as single and lower SES mothers less likely to respond
- Sleep problem defined by parent report
  - parent report correlates with infra-red night recordings
  - self-recognition of problem essential for behaviour change
- Not all mothers took up intervention
  - treating infant sleep problems is a matter of choice!



## Limitations (2)

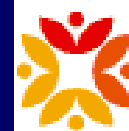
- Intervention inconsistent
  - chosen method applied consistently
  - limited range of concrete strategies took into account parent readiness and type of problem
- No objective measure of infant attachment
- Requires well-functioning universal primary care system
  - could readily be translated to other care providers



# Future directions

- Funded training of 200 more MCH nurses
- Dissemination at a public health level, as is
  - effective
  - applicable to up to 2/3 of women with PND symptoms
  - feasible and acceptable to mothers
- Training manual content informed

[www.raisingchildren.net.au](http://www.raisingchildren.net.au)



raising children network  
the Australian parenting website



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