Linking Temperament and Increased Sleep Disruption during Toddlerhood

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INTRODUCTION

In general, studies have found a reduction in sleep disruption as children move from infancy to pre-school ages (Scher et al., 1995), but some children do have disrupted sleep patterns in toddlerhood and preschool ages. Sleep disruption has been linked to poorer child adjustment in preschool (Bates et al., 2002). Weissbluth (1984) suggests that children with difficult temperaments are more likely to persist in disrupted sleep patterns. The present study investigated the potential for temperament to predict increases in children's sleep disruption from 30 to 36 months. Although previous research has considered temperamental difficultness, we chose to also include temperamental resistance to control and unadaptability/anxiety, because parent reports of children's sleep problems typically include bedtime resistance and night waking.

METHODS

⌘ Participants

- 19 children with complete data from a larger sample assessed at 30 (N = 29) and 36 (N = 23) months
- 15 girls, 4 boys

⌘ Measures

- Activity monitor worn 6 nights
- Daily sleep diary
- Infant Characteristics Questionnaire (ICQ)

⌘ Variables

- Sleep Disruption (standardized composite)
  - Lateness of bedtime (diary)
  - Variability of bedtime (actigraph)
  - Variability of amount of nightly sleep (actigraph)
- Temperament (total score)
  - ICQ Difficult (7 items)
  - ICQ Resistant to Control (3 items)
  - ICQ Unadaptability/anxiety (5 items)

RESULTS

Table 1.
Descriptives

	30 months		36 months	
Variable	*M*	*SD*	*M*	*SD*
Bedtime	21:20	1:04	21:13	0:48
Amount of Sleep – variability	0:55	0:23	1:01	0:25
Time to Fall Asleep – variability	0:40	0:18	0:53	0:26
ICQ Difficult	22.79	6.41		
ICQ Resistant to Control	13.58	3.23		
ICQ Unadaptability/anxiety	13.37	4.40		

Table 2.
Bivariate Correlations

Variable	1	2	3	4	5	6	7
1. Bedtime	–	.02	-.15	.43*	-.04	.10	.10
2. Amount of Sleep Variability	.26	–	.63**	.82**	.02	-.15	.06
3. Time to Fall Asleep Variability	.22	.68**	–	.74**	-.05	-.30	-.04
4. Sleep Disruption	.63*	.85**	.82**	–	-.04	-.17	.06
5. ICQ – Difficult	.03	.03	.42▲		–	.57**	.36
6. ICQ – Resistant to Control	.31	.21	.21			–	.04
7. ICQ – Unadaptability/anxiety	.01	.03	.27				–

Note. ICQ was assessed at 30 months. Correlations at 30 months are above the diagonal and 36 months are below the diagonal.
▲ $p < .10$, *$p < .05$, ** $p < .01$

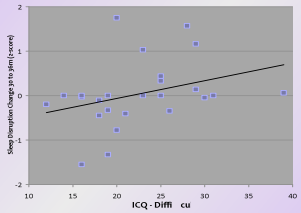
Three multiple regression analyses were used to test the hypothesis that temperamental difficultly, resistance to control, or unadaptability/anxiety at 30 months would predict sleep disruption at 36 months.

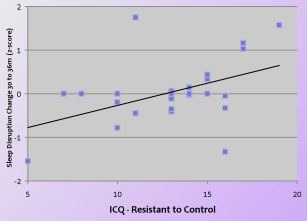
Only temperamental resistance to control predicted more sleep disruption at 36 months after controlling for sleep disruption at 30 months.

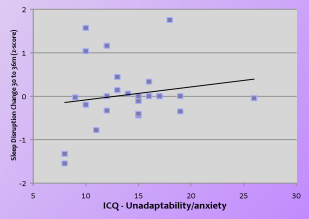
Table 3.
Predicted Sleep Disruption at 36 months - summary

Variables at 30 months	B(SE)	β	R^2
1: Sleep Disruption	.49(.27)	.42	.21
ICQ – Difficult	.04(.03)	.30	
2: Disruption	.57(.26)	.48*	.32*
ICQ – Resistant to Control	.12(.06)	.45*	
3: Sleep Disruption	.43(.27)	.36	.15
ICQ – Unadaptability/anxiety	.03(.04)	.16	

* $p < .05$







CONCLUSIONS

The findings suggest that children who are temperamentally resistant to control may be most at risk for persistent sleep problems. One avenue we are pursuing suggests that family factors related to parenting may be related to the continuity of sleep disruption in this age range (Bates & Staples, 2007).

Because poor sleep quality has been found to be problematic for children in preschool, further research will consider the role of temperament in forecasting sleep disruption problems.

Our on-going research aims to more precisely illuminate the relations between temperament, sleep disruption, and adjustment in a larger, more representative sample of children.

REFERENCES

Bates, J. E. & Staples, A. D. (2007). *Toddler and mother sleep qualities and parenting daily hassles.* Presented at the biennial Society for Research in Child Development conference, Boston, MA.

Bates, J. E., Viken, R. J., Alexander, D. B., Beyers, J., & Stockton, L. (2002). Sleep and adjustment in preschool children: Sleep diary reports by mothers relate to behavior reports by teachers. *Child Development, 73*(1), 62-74.

Scher, A., Tirosh, E., Jaffe, M., Rubin, L., Sadeh, A., & Lavie, P. (1995). Sleep patterns of infants and young children in Israel. *International Journal of Behavioral Development, 18*(4), 701-711.

Weissbluth, M. (1984). Sleep duration, temperament, and Conners' ratings of three-year-old children. *Journal of Developmental & Behavioral Pediatrics, 5*(3), 120-123.

FURTHER INFORMATION

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