

Mother-child attachment security and child temperament as predictors of sleep developments during the preschool period



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Introduction

- **Major developmental changes in sleep** during the **preschool period, including:**
 - increased sleep efficiency and consolidation of sleep into the night period
 - decreased daytime sleep and total sleep
- Little is known about the **factors** that **predict inter-individual differences** in these developments.
- **Mother-child attachment security** (Bélanger et al., 2015) and **child temperament** (Ward et al., 2008) predict child **sleep at specific ages**.
- **Current study:** investigate the **predictive role of these factors** in individual differences in **sleep developments** at preschool age.

Method

- Normative sample (**N= 128**)
- **At 2 years:**
 - **Mother-child attachment security:** Attachment Q-Sort (Waters, 1995) rated by an observer
 - **Child temperament:** Toddler Behavior Assessment Questionnaire (Goldsmith, 1996) completed by mothers (three dimensions: *Activity level, Social fear, and Proneness to anger*)
- **At 2, 3, and 4 years:**
 - **Children's sleep:** children wore an actigraph (Mini-Mitter® Actiwatch, Respironics; AW-64) for three days
- **Growth curves** were fitted using **multilevel modeling** (Mplus)

Results

- Between ages 2 and 4: **Linear decrease** of daytime, total, and nighttime sleep duration, and **linear increase** of proportion of nighttime sleep and sleep efficiency
- **Attachment security** and **social fear did not significantly predict sleep** growth curves
- **Higher activity level** was associated with
 - a **decrease** in the **initial status** of total daily sleep duration (26.4 minutes)
- **Higher proneness to anger** was associated with
 - a **decrease** in the **initial status** of nighttime sleep duration (19.2 minutes), proportion of nighttime sleep (2.31%; marginal), and sleep efficiency (2.35%)
 - an **increase** in the **annual rate of change** of nighttime sleep duration (10.8 minutes; marginal), proportion of nighttime sleep (1.54%; marginal), and sleep efficiency (1.47%)

	Daytime sleep (hrs)	Total daily sleep (hrs)	Nighttime sleep (hrs)	% of nighttime sleep	Sleep efficiency (%)
Initial status					
Activity level	-.11	-.44*	-.16	-.09	-.75
Proneness to anger	.16	-.11	-.32*	-2.31^t	-2.35*
Rate of change					
Activity level	-.01	.17	.11	.75	.67
Proneness to anger	-.13	.01	.18^t	1.54^t	1.47*

Note. Coefficients shown are those in the final models, while accounting for family socioeconomic status. ^tp < .10. *p < .05.

Conclusions

- **Child temperament** (anger proneness) was a **better predictor** of preschool sleep developments than mother-child attachment.
- It is possible that **intrinsic factors** are **more relevant for sleep early on**, when children show very different levels of physiological maturation.
- Children with a more **difficult temperament** enter the preschool period with **shorter, less efficient sleep** that is **less consolidated into the night**, but these aspects then **increase at a faster rate**, possibly allowing them to **catch up with their peers** and achieve similarly mature sleep, albeit later on.

References: Bélanger, M. È., Bernier, A., Simard, V., Bordeleau, S., & Carrier, J. (2015). Viii. Attachment and sleep among toddlers: disentangling attachment security and dependency. *Monographs of the Society for Research in Child Development*, 80, 125-140; Goldsmith, H. H. (1996). Studying temperament via construction of the Toddler Behavior Assessment Questionnaire. *Child Development*, 67, 218-235; Ward, T. M., Gay, C., Alkon, A., Anders, T. F., & Lee, K. A. (2008). Nocturnal sleep and daytime nap behaviors in relation to salivary cortisol levels and temperament in preschool-age children attending child care. *Biological Research for Nursing*, 9, 244-253; Waters, E. (1995). Appendix A: The attachment Q-set (version 3.0). *Monographs of the society for research in child development*, 234-246.