



Bedtime Routines Affect Child Sleep

Alli Cipra, Angela D. Staples, John E. Bates

Department of Psychological & Brain Sciences, Indiana University - Bloomington



INTRODUCTION

- o Insufficient sleep has been linked with mood regulation and behavioral problems (Sadeh, Gruber, & Raviv, 2002; Johnson & McMahon, 2008)
- o Emerging research shows that a parental style which encourages self regulation is advantageous to the transition to sleep and in promoting the child's ability to sooth themselves during night wakings (Johnson & McMahon, 2008; Morrell & Cortina-Borja, 2002).
- o Christodulu and Durand (2004) found that consistent bedtime routines that incorporated specific steps such as taking a bath, reading a story, and changing into pajamas improved children's behavior near bedtime and reduced night wakings and the latency to fall asleep.
- o The present study investigates the relation between the number of steps in the bedtime routine, the consistency of the bedtime routine, and whether specific aspects of the routine affect toddler sleep.

METHODS

- o Participants were 39 toddlers and primary caregivers
- o Sleep data were collected via mother's sleep diary and actigraphy for 7 consecutive nights
- o Toddlers were seen at 30 and 36 months

Variable	30 Months		36 Months	
	M	SD	M	SD
Average number of steps in routine	4.52	1.87	4.14	1.73
Variability in routine steps	1.00	.57	.99	.67
Average bedtime	21:00	0:48	21:14	1:10
Time actually fell asleep	21:30	0:46	21:53	1:05
Average minutes asleep	596.15	38.94	589.55	50.14
Number of wake episodes	11.12	6.43	9.38	5.42
Sleep efficiency	89.11	7.43	93.49	3.15
Average rise time	7:30	0:52	7:45	0:50

Note. 30 month N ranged from 32-39, 36 month N ranged from 17-33

RESULTS

Elements of the Bedtime Routine

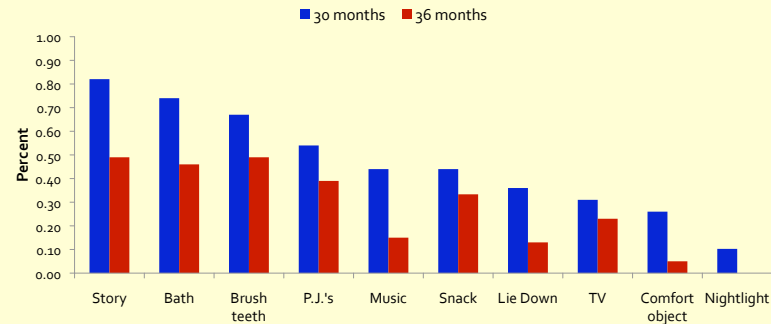


Table 1. Correlations between 30 month sleep variables and bedtime routine measures at 30 and 36 months

Variable	30 Months		36 Months	
	Number of steps	Variability in steps	Number of steps	Variability in steps
Bed time	-.23	-.07	-.29	-.13
Time actually fell asleep	-.14	-.95	-.22	-.12
Average minutes asleep	.03	-.06	.08	-.10
Number of nightly awakenings	-.21	.06	-.41	-.41
Sleep efficiency	.49**	-.06	.37	.33
Rise time	-.15	-.11	-.28	-.16

Note. $p < .05$ *, $p < .01$ **



Table 2. Correlations between 36 month sleep variables and bedtime routine measures at 30 and 36 months

Variable	30 Months		36 Months	
	Number of steps	Variability in steps	Number of steps	Variability in steps
Bed time	.39	.02	-.26	-.19
Time actually fell asleep	.53*	-.17	-.16	-.01
Average minutes asleep	-.46	.25	.12	-.17
Number of nightly awakenings	-.13	.18	-.30	-.10
Sleep efficiency	.13	-.25	.17	-.03
Rise time	.14	.04	-.12	-.24

Note. $p < .05$ *, $p < .01$ **



Table 3. Correlations between sleep variables at 30 and 36 months.

Variable	1	2	3	4	5	6	
1. Bed time		.74**	.94***	-.11	-.12	-.05	.77***
2. Time actually fell asleep		.88***	.70**	-.24	-.09	-.02	.72***
3. Average minutes asleep		-.47†	-.64**	.48	.72**	.24	.48**
4. Number of nightly awakenings		.18	.27	-.10	-.11	-.77***	-.24
5. Sleep efficiency		-.17	-.25	.31	-.85***	-.14	.16
6. Rise time		.67**	.62**	.17	.21	-.07	.74**

Note. 30 months are above the diagonal, 36 months below the diagonal.
† $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

SUMMARY

- o Greater number of completed steps in the bedtime routine was associated with better sleep efficiency.
- o Children who were read a story at 30 months went to sleep earlier and had less restless sleep.
- o Over time parents were relatively stable in the number of steps in the bedtime routine.
- o Latency to sleep, average bedtime, number of wake episodes, and average minutes slept per night were relatively stable across the two time points (30 and 36 months).

DISCUSSION

- o In general, children have fewer elements in the bedtime routine at 36 months compared to 30 months.
- o We observed a change in the bedtime routine from 30 to 36 months with the story element. Prior research (Christodulu & Durand, 2004) suggests the story element is a significantly important aspect of the bedtime routine. Our sample showed the most consistency with steps such as changing into pajamas, brushing teeth, snacks, and television or other media.
- o We also expect that other elements in the bedtime routine may be important to child sleep. Further analysis will be conducted when more data are available.

REFERENCES

- Christodulu, K. & Durand, V. (2004). Reducing Bedtime Disturbance and Night Waking Using Positive Bedtime Routines and Sleep Restriction. *Focus on Autism and Other Developmental Disabilities*, 19(3), 130-139.
- Johnson, N. & McMahon, C. (2008). Preschoolers' sleep behaviour: Associations with parental hardness, sleep-related cognitions and bedtime interactions. *Journal of Child Psychology and Psychiatry*, 49(7), 765-773.
- Morrell, J. & Cortina-Borja, M. (2002). The developmental change in strategies parents employ to settle young children to sleep, and the relationship to infant sleeping problems as assessed by a new questionnaire: The Parental Interactive Bedtime Behaviour Scale. *Infant and Child Development*, 11(1), 17-41.
- Sadeh, A., Gruber, R., & Raviv, A. (2002). Sleep, neurobehavioral functioning, and behavior problems in school-age children. *Child Development*, 73(2), 405-417.

FOR FURTHER INFORMATION

Please contact Alli Cipra acipra@indiana.edu. More information on this and related projects are available at www.indiana.edu/~batessdl/