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Parenting Services may be an Opportunity for Improving Bedtime Routines among At-Risk Preschoolers

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Abstract

Background—Several interventions aimed at improving children's sleep behaviors have been successful. However, a less expensive alternative with broader coverage might be for existing parenting programs to incorporate sleep promotion into their curricula.

Methods—The present study examines approximately 1,800 low-income children according to whether their mothers received 5 types of parenting services in the child's first 3 years of life: case management, home visiting, parent-child groups, parenting classes, and parenting support groups.

Results—Children whose mothers participated in a parent-child group or parenting class by the child's 10th month of life, or in case management between the child's 11th and 19th months of life, were more likely to have a regular bedtime at age 3. Children whose mother participated in a parent-child group between the child's 11th and 19th months of life were more likely to have a regular bedtime routine (i.e. bathing, reading a story) at age 3. Home visiting and parenting support groups were not associated with children's sleep-related behaviors.

Conclusions—Further research should explore the potential for integrating sleep into the curriculum for case management, parent-child groups, and parenting classes in children's first 3 years of life.

Keywords

Bedtimes; preschool children; bedtime routines; sleep; parenting interventions

Introduction

Regular bedtimes and bedtime routines are a critical component of healthy sleep promotion in young children (Mindell et al., 2009a; Mindell et al. 2009b). A review of 52 studies shows that behavioral interventions (such as developing a consistent sleep schedule and quiet activities at bedtime) show that children exhibit improvements in both sleep and child and family well-being (Mindell et al., 2006). To date, prior studies on interventions exclusively targeting healthy sleep promotion in children have been successful (Stremmler et al., 2006; Hiscock et al., 2006; Adams et al., 1989). However, there are more generic approaches to parenting intervention that may be able to incorporate healthy sleep into their curriculum without sacrificing other important goals for new parents. Given the role of parents in establishing and enforcing sleep-related routines, programs that engage parents should have the capacity to focus on sleep-related behaviors.

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This report examines five types of parenting services commonly offered to the parents of at-risk infants and toddlers – case management, home visiting, parent-child groups, parenting classes, and parent support groups. We hypothesize that these five early life interventions, though not explicitly designed to address sleep behaviors, may have positive effects on the presence of three healthier parent-controlled sleep-related behaviors (having a bedtime, hour of bedtime, and having a bedtime routine) at child age 3. To test whether the timing of parenting services matters, we examine services received during three different intervals corresponding to approximately the first 6-10 months of the child's life, the 11th - 19th months of the child's life, and the 20th-32nd months of the child's life.

Methods

The Early Head Start Research and Evaluation Study is an evaluation of the Early Head Start (EHS) program that began when the program was authorized in 1995. The study was conducted at 17 EHS programs across the country selected for their geographic and programmatic diversity (Love et al., 2005). Half of the families were randomly assigned to the program group, which received EHS services, and half were assigned to the control group, in which families were free to obtain services elsewhere. Both groups were followed for 3 years, during which families were visited at home annually around the time of the child's birthday.

Mothers were interviewed by phone 6, 15, and 26 months following enrollment to report on their use of social services and on changes in their demographic status. The mean child age at the 6-month post-enrollment interview was 10 months ($SD = 5$). The mean child age at the 15-month post-enrollment interview was 19 months ($SD = 5$), and the mean age at the 26-month post-enrollment interview was 32 months ($SD = 5$).

Eligibility for the analytic sample was restricted to families who participated in the 3-year home visit and the 26-month post-enrollment phone interview. Of the full sample of 3,001 children participating in the study, 1,850 (62%) were eligible for the present analysis. Compared to excluded cases, included cases had mothers who were more likely to live with a husband and have some college education. However, included and excluded cases were similar on child sex, child age, race/ethnicity, English as primary language, number of children, and poverty status. Thus our results are likely to be generalizable to the majority of at-risk families.

At the 26-month post-enrollment interview, 57% of the families fell below the poverty threshold. Forty-seven percent of mothers were single and living alone, and 46% of mothers had not completed high school. Thirty-nine percent of children were White, 33% were Black, 23% were Hispanic, and 4% were another race/ethnicity.

The ICE command in Stata (Royston, 2007) was used to conduct multiple imputation on the assumption that data were missing at random. Although values for the outcome variables were used in imputation models for other missing variables, they themselves were not imputed per von Hippel (2007). Five imputed data sets were created. The MIM command in Stata (Royston, 2007) combined coefficients and standard errors across imputed data sets.

During the phone interviews conducted 6, 15, and 26 months after study enrollment, mothers reported whether they had received the following parenting services: case management, home visiting, parent-child group program, parenting class, and parent support group. Variables were created to indicate whether each type of service was received at the first interview (when children were on average, 0-10 months), second interview (on average, 11-19 months), and third interview (on average, 20-32 months).

The format and content of each parenting service varied across sites, although mothers reported on attendance and activities. The frequency with which mothers discussed their children in particular with home visitors and case managers is unknown, but in general mothers participated in home visiting and case management approximately once a month. Parent-child groups, parenting classes, and parent support groups typically met at Early Head Start programs, medical or community centers, or schools. The majority of mothers attended parent-child groups once a month or more. Mothers reported getting new ideas on things to do with their child and help in understanding their child's development. Mothers who attended parenting classes or parent support groups did so on average about once a month.

Mothers reported on their child's bedtime and bedtime routine at the age 3 home visit. We estimated regression models to predict the dichotomous variables of having a bedtime and having a bedtime routine (logistic regression), as well as hour of bedtime (ordinary least squares regression). The following characteristics of the child were entered as controls in regression models: sex, race/ethnicity, primary language, number of children in household, maternal age, program assignment, maternal age, maternal employment, maternal education, maternal marital status, and maternal depression.

Results

At child age 3, 76% of mothers reported having a regular bedtime for their child. Of this group, the average bedtime was 8:49 pm, with a modal bedtime between 9 and 10 pm (45% of sample; not shown). Eighty-one percent of mothers reported having a bedtime routine for their child.

Multivariate regression models showed that participation in a parent-child group in the child's first 10 months of life predicted higher odds of having a bedtime at age 3 ($OR = 1.67$, $p < .05$; Table 1). Participation in a parenting class during this interval was also associated with increased odds of having a bedtime at age 3 ($OR = 1.36$, $p < .05$). The receipt of case management when the child was 11-19 months old increased the odds of having a bedtime at age 3 ($OR = 1.47$, $p < .01$). None of the individual services reported at child age 20-32 months was associated with the odds of having a bedtime at age 3.

Participation in a parent-child group between 11 and 19 months of child age was associated with increased odds of having a bedtime routine at age 3 ($OR = 1.83$, $p < .05$). No other service was associated with having a bedtime routine. Among children with a bedtime, case management between 11 and 19 months of age was associated with bedtime hour, albeit in an unexpected direction. Mothers who received case management at 11-19 months had *later* bedtimes for their children than mothers who had not ($B = .14$, $p < .01$), although this difference was trivial (8.4 minutes). No other parenting services investigated here were associated with children's hour of bedtime.

Discussion

Of the five types of parenting services provided in the first 3 years of life, we found that three associated with healthy parent-controlled sleep-related behaviors at child age 3. Given that mothers received the five service types with comparable frequency, results appear to be driven by the type of service itself. Participation in a parent-child group or parenting class predicted having a regular bedtime; participation in a parent-child group predicted having a bedtime routine at age 3; and receipt of case management predicted having a regular bedtime, albeit a slightly later one. It is possible that families in which children have later bedtimes are those with more chaotic home environments, which may be precisely those

most likely to require case management services. If so, the finding reflects selection into rather than a causal effect of case management. However, it is unclear why selection effects would not be evident for the other parenting interventions.

The fact that parent-child groups were the only type of service associated with more than one sleep behavior suggests that this intervention mode may be especially effective for the purpose of affecting sleep habits. The availability and exchange of peer advice in parent-child groups are possible mechanisms worthy of further study.

Parenting services received after the child's 19th month of life were not associated with parent-controlled sleep-related behaviors at age 3. It may be that parents begin to formulate sleep routines for their children at birth, and by the child's second year of life are resistant to try new approaches.

The present study has three limitations. First, mothers were not randomized to receive parenting-related services, raising concerns about selection and confounding factors. Second, the type of curriculum used by each of the service delivery modes is unknown. There is no documentation of whether or how sleep was addressed by the providers of parenting services. While some service providers may have influenced sleep-related behaviors through discussion or education, in some cases providers may have influenced sleep-related behaviors indirectly, by, for example, enhancing mothers' parental self-efficacy. Information about the format of services provided would also be desirable. For example, it is unknown whether the parenting classes, parent-child groups, and support groups were led by professionals or para-professionals. Last, self-reported sleep behaviors may be vulnerable to social desirability bias. Thus the results presented here should be viewed as preliminary and indicative of areas that show promise for more rigorous testing.

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Table 1

Results of logistic regression models of having a bedtime and a bedtime routine, and OLS model of hour of bedtime at age 3, using individual parenting services across time intervals as predictors

	Has Bedtime	Has Bedtime Routine	Hour of Bedtime
	<i>Odds Ratio (95% CI)</i>	<i>Odds Ratio (95% CI)</i>	<i>Coefficient (95% CI)</i>
<i>N</i>	1,835	1,830	1,394
Child's first 10 months of life			
Case management	0.94 (0.70-1.26)	0.89 (0.65-1.22)	0.01 (-0.10-0.12)
Home visiting	0.92 (0.66-1.28)	1.01 (0.71-1.44)	-0.03 (-0.14-0.10)
Parent-child group	1.67* (1.06-2.63)	1.02 (0.61-1.72)	-0.09 (-0.23-0.05)
Parenting class	1.36* (1.02-1.81)	0.99 (0.72-1.36)	-0.06 (-0.18-0.06)
Support group	0.96 (0.61-1.52)	1.01 (0.58-1.75)	0.15 (-0.02-0.32)
Child's 11 th – 19 th months of life			
Case management	1.47** (1.10-1.96)	1.30 (0.95-1.80)	0.14* (0.03-0.25)
Home visiting	0.75 (0.53-1.06)	0.81 (0.55-1.19)	-0.01 (-0.14-0.12)
Parent-child group	1.06 (0.73-1.54)	1.83* (1.09-3.08)	0.10 (-0.03-0.23)
Parenting class	0.96 (0.69-1.34)	1.34 (0.95-1.91)	-0.10 (-0.23-0.04)
Support group	0.97 (0.55-1.73)	1.18 (0.59-2.34)	-0.04 (-0.23-0.15)
Child's 20 th – 32 nd months of life			
Case management	1.03 (0.76-1.39)	1.16 (0.83-1.62)	-0.01 (-0.12-0.11)
Home visiting	1.29 (0.89-1.85)	0.98 (0.66-1.47)	-0.13 (-0.26-0.01)
Parent-child group	0.94 (0.64-1.37)	1.02 (0.66-1.58)	-0.06 (-0.19-0.08)
Parenting class	1.09 (0.79-1.50)	1.13 (0.79-1.62)	0.04 (-0.08-0.15)
Support group	0.82 (0.50-1.36)	1.84 (0.93-3.64)	-0.15 (-0.34-0.04)
Controls			
Child female	1.10 (0.88-1.37)	1.17 (0.92-1.48)	-0.03 (-0.12-0.05)
Child Black	0.76 (0.56-1.02)	0.56** (0.40-0.78)	0.15** (0.04-0.27)
Child Hispanic	0.54** (0.35-0.83)	0.67 (0.40-1.11)	0.23* (0.05-0.41)
Child other race/ethnicity	0.85 (0.46-1.58)	1.09 (0.52-2.27)	0.36** (0.13-0.59)

	Has Bedtime <i>Odds Ratio</i> (95% CI)	Has Bedtime Routine <i>Odds Ratio</i> (95% CI)	Hour of Bedtime <i>Coefficient</i> (95% CI)
English primary language	0.89 (0.59-1.35)	1.13 (0.71-1.81)	-0.12 (-0.29-0.05)
Mother teen at birth	0.83 (0.64-1.07)	0.77 (0.58-1.02)	0.24*** (0.14-0.34)
Number of children	0.96 (0.86-1.06)	1.04 (0.93-1.17)	-0.04 (-0.08-0.00)
Maternal depression	1.00 (0.98-1.02)	1.00 (0.98-1.02)	0.00 (-0.00-0.01)
Mother works part-time	1.19 (0.85-1.68)	1.23 (0.82-1.83)	0.15* (0.01-0.28)
Mother works full-time	1.39* (1.04-1.85)	0.92 (0.67-1.26)	0.00 (-0.09-0.10)
Below poverty threshold	1.11 (0.84-1.46)	0.89 (0.66-1.20)	-0.01 (-0.10-0.09)
Mother married	0.85 (0.64-1.13)	1.01 (0.73-1.38)	-0.04 (-0.15-0.07)
Mother cohabiting	1.15 (0.81-1.63)	1.05 (0.73-1.51)	0.09 (-0.04-0.22)
Mother has high school degree	1.16 (0.86-1.56)	1.29 (0.94-1.78)	0.05 (-0.06-0.17)
Mother has more than high school degree	1.47* (1.03-2.09)	1.57* (1.07-2.31)	0.00 (-0.12-0.13)
In EHS treatment group	0.99 (0.73-1.35)	1.00 (0.72-1.40)	0.09 (-0.03-0.21)

*
 $p < .05$

**
 $p < .01$

 $p < .001$