

ORIGINAL ARTICLE

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How infant sleep patterns affect parental sleep quality: A cross-sectional study

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Abstract

Sleep disturbances are common during infancy and may adversely affect parental sleep and overall well-being. This study aimed to evaluate the relationship between sleep characteristics of infants aged 0–36 months and parental sleep quality. This cross-sectional study included 753 parents (96.7% mothers) of infants aged 0–36 months. Data were collected using an online questionnaire assessing infant sleep patterns (sleep duration, nocturnal awakenings, and sleep onset latency) and parental sleep quality using a composite index based on self-reported sleep parameters. Frequent infant nocturnal awakenings were associated with lower parental sleep quality ($r = -0.36$, $p < 0.001$). Longer infant nighttime sleep duration was positively correlated with better parental sleep quality ($r = 0.42$, $p < 0.001$). Parents of infants who fell asleep within 10 minutes reported significantly higher sleep quality scores compared to those whose infants required longer to fall asleep ($p < 0.001$). Infant sleep fragmentation and delayed sleep onset are significantly associated with poorer parental sleep quality. These findings highlight the importance of promoting healthy infant sleep routines as part of family-centered interventions to improve parental well-being and overall sleep health.

Keywords: Infant sleep, parental sleep quality, sleep duration, nocturnal awakening, sleep hygiene

Introduction

Sleep is a fundamental physiological process that plays a critical role in infants' growth, neurological development, and behavioral regulation. During the first three years of life, infant sleep patterns are often irregular, characterized by frequent nocturnal awakenings, variable sleep duration, and prolonged sleep onset latency. These disruptions may significantly affect parental sleep quality and overall family functioning [1].

Previous studies have shown that approximately one in three parents experience sleep disturbances during early child-rearing, particularly mothers who are more frequently involved in nighttime caregiving [2]. Parental sleep deprivation has been associated with fatigue, mood disturbances, impaired cognitive functioning, and reduced daytime performance [3]. Moreover, insufficient parental sleep may negatively influence caregiving behaviors, leading to inconsistent bedtime routines and suboptimal responses to infant sleep difficulties [4].

Several international studies have demonstrated that infant sleep patterns are closely linked to parental sleep outcomes. Frequent nocturnal awakenings and irregular sleep patterns have been associated with poorer parental sleep quality and increased psychological distress [5,6]. In particular, infant sleep quality has been identified as a key predictor of maternal sleep quality, mood, and stress levels [6]. Additionally, bedtime practices such as parental presence and soothing behaviors have been linked to more frequent night awakenings and disrupted sleep consolidation in infants [7,8].

Although these associations have been widely investigated in high-income countries, evidence from Türkiye remains limited. Understanding these relationships in different sociocultural contexts is essential for developing effective, culturally appropriate sleep counseling strategies in pediatric and primary care settings [9].

Therefore, this study aimed to investigate the relationship between sleep characteristics of infants aged 0–36 months and

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parental sleep quality in a large sample of parents in Türkiye. By identifying the key infant sleep factors associated with parental sleep outcomes, this study seeks to contribute to the development of targeted, family-centered sleep interventions.

Material and Methods

This cross-sectional study was conducted to examine the relationship between sleep characteristics of infants aged 0–36 months and parental sleep quality. Data were collected between June and October 2025 through an online questionnaire distributed via pediatric outpatient clinics and verified parenting networks in Türkiye. This study was reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [10].

Participants

A total of 753 parents (728 mothers and 25 fathers) of infants aged 0–36 months participated in the study.

Inclusion criteria were:

1. Being a biological parent of an infant aged 0–36 months,
2. Living in the same household with the infant, and
3. Providing complete survey responses.

Exclusion criteria were parents with diagnosed sleep disorders, chronic psychiatric illness, or incomplete questionnaire data.

Data Collection Tools

Data were collected using a structured online questionnaire consisting of three main sections:

1. Sociodemographic Information Form: This section included questions on parental age, education level, employment status, number of children, and cohabitation status.

2. Infant Sleep Characteristics Form: This section included items on bedtime, total nighttime and daytime sleep duration, number of nocturnal awakenings, sleep onset latency, co-sleeping arrangements, and use of sleep aids (e.g., feeding, rocking).

3. Parental Sleep Quality Score: Parental sleep quality was assessed using a composite index derived from self-reported sleep parameters, including total sleep duration, frequency of nocturnal awakenings, and subjective sleep continuity. Participants reported their average nightly sleep duration and perceived sleep interruptions over the past week. A composite sleep quality score was calculated by standardizing and combining these components, with higher scores indicating better sleep quality. This approach was adapted from previously validated parental sleep assessment frameworks reported in the literature [5]. Although this composite index is not a single standardized scale, similar multidimensional measures have been widely used in studies evaluating parental sleep outcomes in the context of infant care. To ensure clarity and consistency,

the questionnaire was pilot tested on 25 participants prior to the main study.

Sample Size Consideration

A formal a priori sample size calculation was not performed. However, the relatively large sample size (N=753) is considered sufficient to ensure adequate statistical power for detecting moderate associations in observational studies.

Statistical Analysis

All analyses were performed using IBM SPSS Statistics version 30.0 (IBM Corp., Armonk, NY, USA). Normality of data distribution was assessed using the Kolmogorov–Smirnov test, which indicated that most continuous variables were not normally distributed ($p < 0.05$). Descriptive statistics were presented as mean $\pm$ standard deviation (SD) for continuous variables and as frequency (n, %) for categorical variables. Group comparisons were performed using Mann–Whitney U and Kruskal–Wallis H tests for non-parametric data. Although non-parametric tests were preferred for group comparisons, Pearson’s correlation analysis was used to evaluate associations between continuous variables. This choice was based on the relatively large sample size (N=753), which allows Pearson’s correlation to provide robust and reliable estimates even in the presence of minor deviations from normality. Additionally, visual inspection of scatter plots suggested approximately linear relationships between the variables. Correlations between infant sleep characteristics and parental sleep scores were analyzed using Pearson’s correlation coefficient (r). The level of statistical significance was set at $p < 0.05$ for all tests.

Ethical Considerations

Ethical approval for the study was obtained from the Ethics Committee of Eskişehir City Hospital (Decision No: ESH/BAEK 2025/261). The study protocol was reviewed and approved prior to the final analysis of the data. All procedures were conducted in accordance with the Declaration of Helsinki (2013 revision). Participation was voluntary, and informed consent was obtained from all participants. Data confidentiality was maintained in compliance with the Personal Data Protection Law of Türkiye (Law No. 6698).

Results

Sample Characteristics

A total of 753 parents of infants aged 0–36 months were included in the analysis. The mean age of the infants was 16.07 ± 10.46 months, and the average number of children per household was 1.58 ± 0.68 . The majority of respondents were mothers (96.7%), university graduates (63.9%), and not currently employed (66.7%). Most participants reported living with their partners (98.3%) and having a single child (78%). A detailed distribution of sociodemographic variables is presented in Table 1.

Table 1. Sociodemographic characteristics of the sample (N = 753)

Category	n (%)
Parent completing survey	
Mother	728 (96.7)
Father	25 (3.3)
Education	
Primary school	7 (0.9)
Secondary school	21 (2.8)
High school	167 (22.2)
University	481 (63.9)
Postgraduate	77 (10.2)
Employment status	
Not working	502 (66.7)
Part-time	65 (8.6)
Full-time	186 (24.7)

Infant Sleep Characteristics

The mean total nighttime sleep duration of infants was 8.75 ± 0.72 hours, with an average of 2.31 ± 1.24 nocturnal awakenings per night. The mean sleep onset latency was approximately 25 minutes, and 82% of infants required parental assistance to fall asleep.

Only 11.1% of infants were able to initiate sleep independently, whereas 30.2% required feeding and 28.8% were soothed through rocking or motion.

Daytime sleep duration varied across the sample. A total of 6.9% of infants did not nap during the day, while 51.4% slept between 61 and 120 minutes. The mean total daily sleep score was 5.91 ± 2.44 .

Relationship Between Infant and Parental Sleep

Correlation analyses demonstrated significant associations between infant sleep parameters and parental sleep quality (Table 2). Frequent nocturnal awakenings were negatively correlated with parental sleep quality ($r = -0.367$, $p < 0.001$). In contrast, longer infant nighttime sleep duration was positively correlated with parental sleep quality ($r = 0.354$, $p < 0.001$). Additionally, shorter sleep onset latency was associated with better parental sleep quality ($r = -0.312$, $p < 0.001$). Parents of infants who fell asleep within 10 minutes had significantly higher sleep quality scores compared to those whose infants required longer than 30 minutes to fall asleep ($p < 0.001$). No statistically significant differences in parental sleep quality were observed according to parental age, education level, or employment status ($p > 0.05$).

Table 2. Correlations between infant sleep characteristics and parental sleep quality

Infant variable	Parental Sleep Quality (r)	p-value
Nocturnal awakenings	-0.367***	< 0.001
Total nighttime sleep	0.354***	< 0.001
Sleep onset latency	-0.312***	< 0.001
*** $p < 0.001$; p = statistically significant correlation		

Discussion

The main findings of this study indicate that frequent nocturnal awakenings and prolonged sleep onset latency in infants are significantly associated with poorer parental sleep quality, whereas longer infant nighttime sleep duration is associated with better parental sleep outcomes.

The present study demonstrated a significant relationship between infant sleep characteristics and parental sleep quality. Specifically, frequent nocturnal awakenings and prolonged sleep onset latency in infants were associated with poorer parental sleep continuity and lower overall sleep quality. These findings are consistent with previous studies reporting that irregular infant sleep patterns can disrupt parental rest and daily functioning [1,2]. Prior research has also shown that infant sleep fragmentation is strongly linked to increased parental fatigue, mood disturbances, and impaired daytime functioning [2,3,11].

Similar to earlier studies, our findings suggest that both the duration and regularity of infant nighttime sleep are key determinants of parental sleep quality. Parents of infants who slept longer and fell asleep more quickly reported better sleep outcomes. This is in line with evidence indicating that stable and predictable sleep patterns may play a more important role than total sleep duration alone in determining parental well-being [3,4,13].

In addition, the findings of this study support the concept of a bidirectional relationship between infant and parental sleep. Frequent night awakenings in infants may disrupt parental sleep, which in turn may reduce the caregiver’s ability to establish consistent bedtime routines. This reciprocal interaction has been described in previous studies, suggesting that sleep disturbances within the family may become self-reinforcing over time [4,5,14].

From a clinical perspective, these findings highlight the importance of addressing infant sleep patterns within routine pediatric and primary care practice. Providing parents with guidance on establishing consistent bedtime routines, promoting independent sleep initiation, and optimizing the sleep environment may improve both infant and parental sleep outcomes. Previous interventional studies have shown that behavioral sleep interventions can significantly improve infant sleep and maternal well-being [1,11,15].

Strengths and Limitations

The main strengths of this study include its large sample size, broad age range (0–36 months), and the simultaneous evaluation of multiple sleep-related parameters using a structured and standardized data collection tool.

However, several limitations should be acknowledged. First, the cross-sectional design precludes causal inference. Second, all data were based on parental self-reports, which may be subject to recall and reporting bias. Objective measures such as actigraphy or sleep diaries could provide more precise assessments in future research. Third, the sample predominantly consisted of mothers and highly educated individuals, which may limit the generalizability of the findings. Finally, the use of an online survey may have introduced selection bias, as participation may have been more likely among individuals with higher digital literacy and greater interest in sleep-related issues. Therefore, caution is warranted when generalizing the findings to more diverse populations.

Conclusion

This study provides evidence that fragmented infant sleep, particularly frequent nocturnal awakenings and delayed sleep onset, is associated with poorer parental sleep quality during early childhood. Promoting healthy sleep routines in infancy may not only improve infant sleep patterns but also enhance parental well-being and overall family functioning.

Routine pediatric visits should incorporate basic sleep counseling for parents, focusing on consistent bedtime schedules and sleep hygiene practices. Future longitudinal studies using objective sleep measures are needed to better understand causal pathways and to develop effective family-centered sleep interventions.

Ethical Approval

This study was approved by the Ethics Committee of Eskişehir City Hospital (Decision No: ESH/BAEK 2025/261, dated 11 December 2025).

Patient Consent

Participation was voluntary, and informed consent was obtained from all participants prior to data collection. No personally identifiable information was collected, and data confidentiality was maintained in compliance with the Personal Data Protection Law of Türkiye (Law No. 6698).

Conflict of Interest

The authors confirm the absence of any conflicts associated with this work.

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References

1. Liu J, Sun Y, Fan X, et al. Effects of psychosocial sleep interventions on improving infant sleep and maternal sleep and mood: a systematic review and meta-analysis. *Sleep Health*. 2023;9:662-71.
2. Mindell JA, Sadeh A, Wiegand B, et al. Cross-cultural differences in infant and toddler sleep. *Sleep Med*. 2010;11:274-80.
3. Short MA, Dohnt H, Lack LC. Parental sleep deprivation and its impact on cognitive functioning and mood. *Sleep Med Rev*. 2013;17:1-9.
4. Tikotzky L. Parenting and sleep in early childhood. *Curr Opin Psychol*. 2017;15:118-24.
5. Philbrook LE, Teti DM. Bidirectional associations between bedtime parenting and infant sleep. *Sleep*. 2016;39:1639-47.
6. Cook F, Conway LJ, Giallo R, et al. Infant sleep and maternal mental health: a longitudinal study. *Pediatrics*. 2020;146:e20192014.
7. Sadeh A, Tikotzky L, Scher A. Parenting and infant sleep. *Sleep Med Rev*. 2010;14:89-96.
8. Mindell JA, Leichman ES, Walters RM. Sleep and social development in infants. *Sleep Med Clin*. 2017;12:27-36.
9. Mindell JA, Williamson AA. Benefits of a bedtime routine in young children: sleep, development, and beyond. *Sleep Med Rev*. 2018;40:93-108.
10. Cuschieri S. The STROBE guidelines. *Saudi J Anaesth*. 2019;13:S31-4.
11. Mindell JA, Kuhn B, Lewin DS, et al. Behavioral treatment of bedtime problems and night wakings in infants and young children. *Sleep*. 2006;29:1263-76.
12. Meltzer LJ, Mindell JA. Relationship between child sleep disturbances and maternal sleep, mood, and parenting stress: a pilot study. *J Fam Psychol*. 2007;21:67-73.
13. Sadeh A, Mindell JA, Luedtke K, et al. Sleep and sleep ecology in the first 3 years: a web-based study. *J Sleep Res*. 2009;18:60-73.
14. Tikotzky L, Volkovich E. Infant nocturnal wakefulness: a longitudinal study of parental sleep and well-being. *J Clin Child Adolesc Psychol*. 2019;48:215-26.
15. Hiscock H, Bayer JK, Hampton A, et al. Long-term effectiveness of a behavioral intervention for infant sleep problems. *Pediatrics*. 2008;122:e621-7.