

Study: How mother and infant sleep patterns interact during the first two years of life

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New mothers can expect sleep deprivation in the first few years of baby's life. But too little sleep can take a toll on the health of both mother and child. A new study from the University of Illinois Urbana-

Champaign looks at maternal and infant sleep patterns, identifying predictors and providing recommendations for instilling healthy habits.

"The first two years is a really critical period where a lot of development is going on, and sleep is important for health. We wanted to look at the association of mother and infant sleep and whether it changes over time," said Tianying Cai, now a postdoctoral researcher at Northwestern University. She worked on the research as a doctoral student in the Department of Human Development and Family Studies (HDFS), part of the College of Agricultural, Consumer and Environmental Sciences (ACES) at the U. of I.

"We identified two distinct groups, a low maternal sleep group where the mothers get 5 to 6 [hours of sleep](#) per night, and an average maternal sleep group, which meets the national recommended sleep guidelines with 7 to 8 hours per night. Children in the low maternal sleep group also slept less, although the difference wasn't as large as for the mothers," Cai stated.

The research team followed parents of 464 infants in the first two years of life. Mothers completed surveys about bedtime routines, their child's sleep duration, nighttime waking, and sleep problems at 3, 12, 18, and 24 months of age.

The families were part of STRONG Kids 2, a program at the U. of I. that promotes nutrition and healthy habits in families with young children. STRONG Kids 2 co-directors Barbara Fiese, professor emerita of HDFS, and Sharon Donovan, professor of food science and human nutrition, also contributed to the study.

Mothers who fit the low maternal sleep profile got an average of 5.74 hours of sleep per night at 3 months and 5.9 hours at 12 to 24 months, while their children got 9.6 and 10.52 hours, respectively. In the average

sleep profile, mothers got 7.31 hours at 3 months and 7.28 hours at 12 to 24 months, while child sleep averaged 9.99 hours at 3 months and 11 hours at 12 to 24 months.

The research team also identified factors that influence the amount of sleep a mother gets. Not surprisingly, one of the strongest predictors is infant-signaled nighttime waking, which means the infant is more likely to alert the parent at night. This could be either because these infants woke more frequently, or because the mothers were more likely to wake up when infants stirred, Cai noted.

Mothers who had longer employment hours were more likely to be in the low sleep group at 3 months, although that was no longer a factor by 12 months. Furthermore, those who breastfed their infant at 12 months were more likely to be in the average sleep group.

Over time, many families transitioned from the low to the average sleep group as [infant sleep](#) patterns consolidated. At 3 months, 60% were in the low maternal sleep group and 40% were in the average group, while at 12 months the numbers were reversed. Most of those who were in the average sleep group at 3 months continued to be so throughout the study period.

The researchers found that an earlier bedtime and consistent routines were associated with better sleep patterns, corroborating a previous study from Fiese and Cai.

"If parents can establish early [bedtime routines](#) at three months, it improves sleep duration and reduces sleep problems," Fiese said.

"Parents may feel overwhelmed and don't realize that they have this in their toolkit. Something as simple as setting a regular bedtime early on and having routines, like reading a story to your child before they go to bed. You may not think they're understanding, but the rhythm of your

voice establishes predictability, and you can expand this bedtime routine over the first few years of life."

The researchers noted they did not observe any significant differences due to demographic characteristics in the sample.

"Maternal education, income, or ethnicity did not predict sleep group memberships across 3 to 24 months; all parents were facing similar challenges. I think having a baby is a great equalizer for a lot of things, although moms who have to go back to work or work longer hours may have more pressures," Donovan said.

Even so, there are steps everyone can take to improve bedtime habits and sleep patterns.

"Getting kids to bed earlier and trying to meet the American Academy of Pediatrics guidelines is really important because studies have shown that sleep is associated with a lot of neurocognitive outcomes and health in kids. The parents can be quite proactive even early in life to get their kids off on the right foot," she concluded.

The research is published in the *Journal of Developmental & Behavioral Pediatrics*.

More information: Tianying Cai et al, The Relationship Between Maternal and Infant Sleep Duration Across the First Two Years, *Journal of Developmental & Behavioral Pediatrics* (2023). [DOI: 10.1097/DBP.0000000000001195](https://doi.org/10.1097/DBP.0000000000001195)

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