

Family-Based Sleep Technologies: Opportunities and Challenges

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OVERVIEW

Sleep is a critical component of overall wellness, and pervasive and ubiquitous computing technologies have shown promise for allowing individuals to track and manage their sleep quality.

However, sleep quality is also affected by interpersonal factors, especially for families with young children. In this study, we adopted a family informatics approach to understand opportunities and challenges for sleep technologies at the family level.

We conducted home-based interviews with 10 families with young children, asking them about their current practices, values, and perceived role for technology. We describe challenges across three phases: bedtime, nighttime, and waking. We show that familybased sleep technologies may have the greatest impact by supporting family activities and rituals, encouraging children’s independence, and providing comfort.

METHODS

Most common family participant:

- Urban area of Indianapolis, IN
- 3-7 years old children
- Detached house
- White two-parent household

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01 Sleep study questionnaire with all family members before visit
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02 Home-based interview with all family
- 

03 Observation. Home tour with focus on bedrooms
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04 Iterative qualitative analyses

FUTURE WORK

Narrow down problem to: ‘How might we help children easily fall asleep independently, so they don’t need parents every time for falling asleep?’

Generate at least 3 ideas, create video prototypes for them. Evaluate them with families.


FINDINGS


Family challanges

01 Bedtime

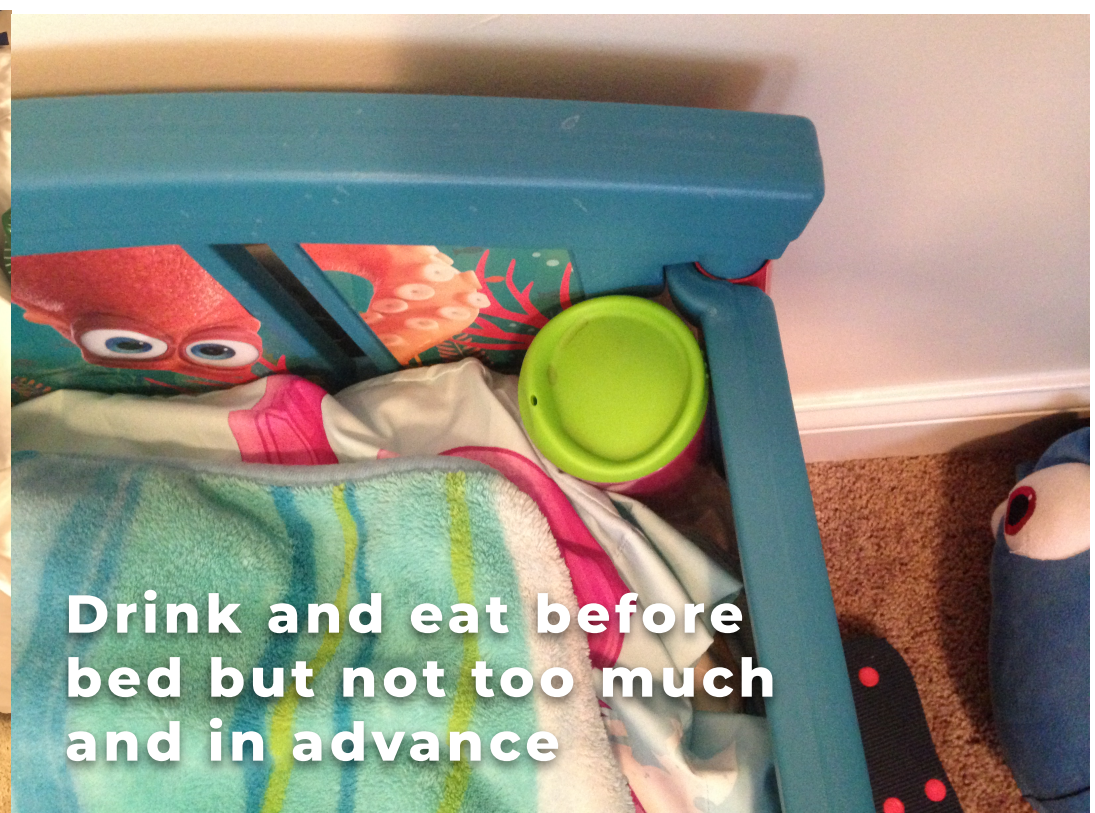
Families enjoyed togetherness and ‘magic time’ with a book. However, children wanted to extend the transition time from ‘party’ to slumber.

SOLUTIONS →







Be tired enough but not too excited



Drink and eat before bed but not too much and in advance



Light/noise/climate comfort




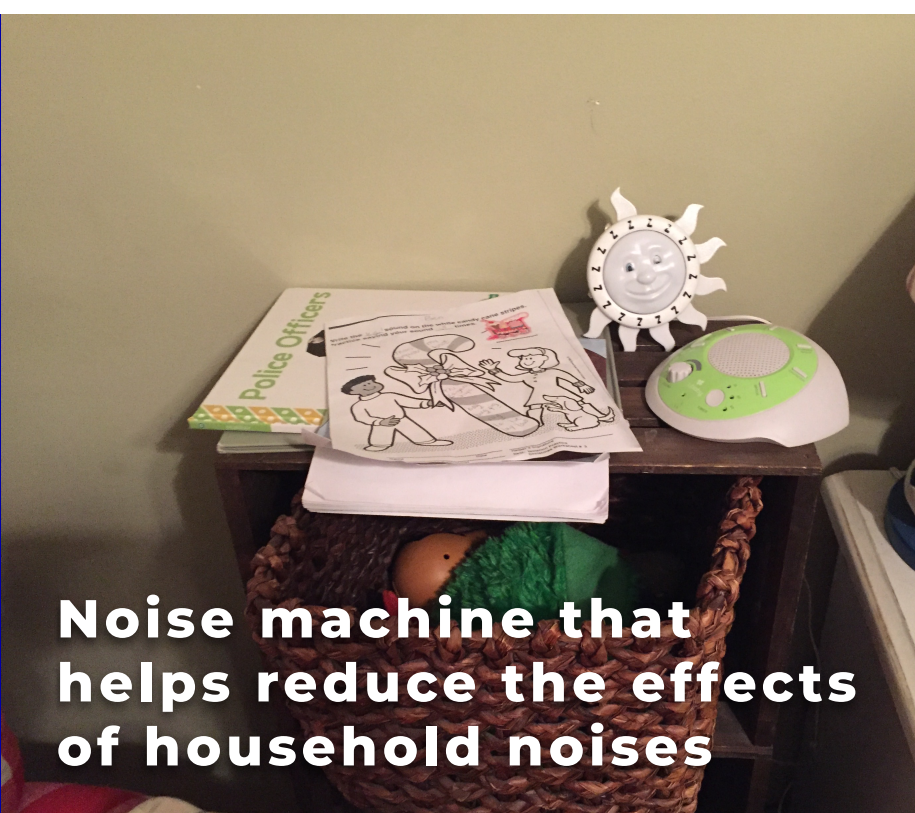
Security object

02 Night & Early waking


Children sometimes woke during the night due to nightmares, night fears, or illness. Some children consistently woke up early despite parents’ efforts.

SOLUTIONS →





Noise machine that helps reduce the effects of household noises




Rule enforcement

Night waking requires parents to address the issue by staying with the child or allowing the child to co-sleep with them. As a result parents sleep is disrupted, especially for the parent who has the ‘night shift’ over children.

“I believe that it is not fair not to be welcome to our room when all the rest family [both parents] and even a dog are there” –F10

“...She falls asleep better with me and sleep is time when I can be actually together after my work day, so that’s why I don’t want to change it”. –F4



Rule enforcement

Technology acceptance

- Families limit screen time for their children.
- Families were concerned of hacking devices over network OR health dangers of wifi or bluetooth.
- Looking for technologies that help to keep calmness and togetherness
- Families avoid extra expenses, especially on devices that don’t seem as useful

DISCUSSION

Design opportunities for family-based sleep technologies

- Support**

Encourage

Provide
- family activities and rituals.
 - children’s independence.
 - daytime activities that promote consistent and restful sleep.
 - comfort at night.

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