



## Behavioral insomnia in young children: Integrating behavioral and cognitive approaches for a comprehensive treatment strategy

Behavioral insomnia, usually manifested in difficulties initiating and/or maintaining sleep without the help of a caregiver, affects approximately one in three infants and young children [1]. While it may be normal for an infant to cry before falling asleep, these nighttime cries can induce anxiety and stress in parents. Parental soothing during the night is crucial in the first months of life to tend to the child's needs (e.g., feeding) and foster secure attachment. However, some infants become overly dependent on parental facilitation of sleep in the longer term. If these interventions help the child fall back asleep quickly and reassure the parents, according to the behavioral approach they may act as negative reinforcers, increasing the frequency of the child's demands and potentially hindering the development of self-soothing skills that are necessary for achieving consolidated sleep [2].

To minimize this dependency, as in the recommended treatments for anxiety disorders, the method of exposure with response prevention is considered most appropriate [3]. Consequently, the most efficient treatment for behavioral insomnia in children is extinction-based methods (EBMs) [4]. The complete extinction method consists of ignoring the child's crying all night long. The graduated extinction method (also called checking out) involves leaving the child alone for progressively longer periods without intervening [5] at sleep onset and during nighttime awakenings, while at the same time guiding parents to visit the child at certain intervals to provide brief help and reassurance about parental presence. The EBMs have the highest level of evidence for efficacy [1,4]. However, as with all exposure methods, adherence is often poor because it requires overcoming the avoidance symptom (in this case, parents avoiding the anxiety associated with their child's cries) and accepting that the conditioned behavior (crying) will initially increase in intensity and frequency [6]. This is similar to adaptation methods used in daycare, which are based on the same active principle of habituation (gradually reducing parental presence) and are widely accepted and undisputed. EBMs for treating infant insomnia, have been facing criticism, reinforcing the belief that children should not be left to cry at night [7], thereby reducing adherence to the gold standard treatment. In our French clinic, among 2098 patients referred for their child's insomnia, 60 % had already attempted EBMs and subsequently abandoned it before contacting us.

In response to this low uptake and adherence, more EBMs have been proposed [8], which have also generated debate [7,9]. One EBM with reduced parental presence, instructs parents to initially sit on a chair near the child's bed at sleep onset and respond promptly, then gradually increasing the distance from the child's bed (initially staying by the bedside, then moving further away until eventually leaving the room). Another approach is Camping out which guides parents to sleep in the

child's room on a separate mattress/bed for about two to three weeks from bedtime to rise time with no further interactions with the child [8, 10]. A different method, known as Response-based sleep intervention, involves responding to every nighttime demand from the child [11]. This method has received only limited empirical support. Although these methods of reducing parental presence are better received by parents who have lower tolerance for crying, they remain modifications of behavioral setting only and therefore limit treatment to a purely behavioral approach.

According to the Component Process Model [12], the anxiety triggered by a child's cries depends on the parents' interpretations [13]: as long as the cries are interpreted as a threat to the child's well-being, the parent will continue to actively intervene. In this sense, Sadeh's and Anders' transactional model [14] integrates the interpretation of cries into the etiology of the child's insomnia. Sadeh et al. [15,16] conducted several studies demonstrating that parental sleep-related cognitions associated with limit-setting difficulties were correlated with poorer infant sleep quality. Moreover, Kahn et al. (2020) found that low parental cry tolerance and distress attributions predicted inferior treatment outcomes [17]. Specifically, reductions in the frequency of nighttime awakenings and parent-reported sleep problems were greater when parents initially demonstrated fewer distress-related cognitions. Therefore, it appears necessary to first address the interpretations of nighttime cries before implementing behavioral methods.

Since the 1980s, behavioral therapies have been enriched by a cognitive and emotional wave. To change certain behaviors, cognitive restructuring of belief systems and emotional regulation are necessary. For example based on Relational Frame Theory (RFT), Acceptance and Commitment Therapy (ACT) promotes changing cognitive contexts to influence behavior [18]. RFT stipulates that behavior is regulated not only by direct experience, but also by language. In this approach, language is considered as an operant reinforcer, whose narrative and meaning influence the history of behaviors (and hence their maintenance). Changing the links between representations (i.e., semantic contexts) enhance behavioral changes [19]. If the parent understands that allowing their child to cry (while maintaining a clear message about parental presence at home: the message changes from "you are totally dependent on me for falling asleep", to "We are here to protect and reassure you, but we expect you to fall asleep by yourself.") can help the child learn to self-soothe, the nighttime context is less likely to evoke parental feelings of abandonment anxiety but rather be seen as an opportunity for the child to learn autonomy. This understanding would make the parent more likely to apply EBMs. Similarly, parents accepting their frustration and anxiety in service of the value of being a good

<https://doi.org/10.1016/j.sleep.2025.01.005>

Received 22 October 2024; Received in revised form 19 December 2024; Accepted 4 January 2025

Available online 10 January 2025

1389-9457/© 2025 Published by Elsevier B.V.

parent, one who adjusts attachment to the child's age by providing appropriate limits, will counter the irresistible need to regulate their anxiety. To improve adherence, parents should be informed that behavioral methods do not have a negative impact on emotional functioning [20] and attachment [21] of the parent or child over the long term. Finally, even before applying EBMs *in vivo*, it may be beneficial for highly anxious and cry-intolerant parents to undergo imagined exposure with response prevention [22], for example, by listening to recordings of cries during the day until emotion habituation. We encourage sleep pediatricians and researchers to integrate more modern psychotherapeutic approaches in a multidisciplinary manner, focusing on parental cognitions and emotions. We propose as research agenda: (a) randomized controlled studies comparing EBMs with and without cognitive restructuring of nocturnal crying interpretation, (b) with and without exposure to cry recordings. (c) It would also be relevant to evaluate the effectiveness of EBMs enhanced by ACT. We suggest the following main outcomes: The severity of insomnia and the child's sleep autonomy, but also the parents' adherence to EBMs according to their culture.

### CRedit authorship contribution statement

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### Off-label or investigational use

None.

### Financial support

None.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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