

***Description of a Sleep-Restriction Program
to Reduce Bedtime Disturbances and Night Waking
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Introduction

Dr. Mark Durand (College of Arts & Sciences, University of South Florida) and Dr. Kristin Christodulu (Center for Autism & Related Disabilities, University of Albany) recently conducted a case study of two 4-year old girls experiencing sleep disturbances. Sleep disturbances are more common in children with developmental disabilities than in children who are typically developing. Research has shown that most sleep disorders do not subside without treatment, and that many sleep disturbances continue into adulthood. Sleep complications can lead to daytime behavioral and psychological problems, increasing irritability, hyperactivity, and self-injurious behavior.

Common treatments for sleep problems include drug therapy and behavioral interventions. Drugs such as melatonin are frequently used to decrease sleep disturbances, however, pharmacological treatments appear to have few long-term benefits for children and have many potential side effects. There are many behavioral procedures that are used to reduce disruptive sleep patterns in children. These interventions include bedtime routines, extinction, scheduled awakenings, and sleep restriction. Many of these techniques have resulted in an increase in disruption at bedtime and awakenings during the night. This study looked at the effectiveness of sleep restriction in reducing bedtime disturbances and nighttime awakenings in two children with developmental disabilities.

Participants & Initial Assessment

This case study included two children: Sara, a 4-year old girl who had been diagnosed with autism, and Melissa, a 4-year old girl with developmental delays. Sara stopped initiating and maintaining sleep at 15 months of age. She experienced frequent nighttime awakenings (at least 1 per night, lasting 1 hour) and bedtime disturbances. Due to her awakenings, Sara slept in her parents' bed approximately 4 times per week. Prior to starting the sleep restriction intervention, Sara was receiving melatonin nightly and Benadryl on occasion. Her bedtime varied from 8:00 p.m. to 12:00 a.m., and her wake-up time ranged from 3:00 a.m. to 9:30 a.m.

Melissa's parents reported that she had always had disrupted sleep and she experienced nightly bedtime disturbances and periodic nighttime awakenings. Prior to the intervention program, Melissa had a regimented bedtime routine (1-1 ½ hours in length). Any interruptions or deviations in the routine would cause Melissa to become upset, which resulted in starting the routine over again. Once in bed, Melissa's parents would spend between 1- 1 ½ hours to settle her to sleep each night. Her bedtime disturbances consisted of getting out of bed and crying at her door, asking to watch more television, knocking over the bedroom gate, and tantrums involving hitting herself. When Melissa woke during the night, her parents would either start the routine again or lie in bed with

Reference:

Durand, V.M. & Christodulu, K.V. (2004). Description of a sleep-restriction program to reduce bedtime disturbances and night waking. *Journal of Positive Behavior Support*, 6, 83-91.

her. At the time of initial assessment, Melissa's bedtime was between 7:00 p.m. and 7:30 p.m. and her awakening time was 6:45 a.m. to 7:00 a.m.

Prior to the start of the sleep-restriction program, Sara and Melissa's parents were very unsatisfied with their child's sleep patterns. Using the *Parental Sleep Satisfaction Questionnaire*, the researchers determined that both sets of parents were significantly dissatisfied with the time it took to put their child to bed, the amount of time their child slept, and the way their child behaved at bedtime

Procedure

The goal of this case study was to decrease bedtime disturbances and night awakenings using sleep restriction. Sleep restriction involved restricting the amount of time the child was in bed to 90% of the total amount of time that the child slept. Sara slept an average of 8.75 hours per night; during the intervention her sleep was restricted to 7 hours, moving her bedtime to 12:00 a.m. and her wake-up time to 7:00 a.m. Melissa slept an average of 10.85 hours per night, which was restricted to 9.5 hours with a bedtime at 9:30 p.m. and a wake-up time of 7:00 a.m.

During the intervention program, if the child remained wide awake in bed at night, she was removed from bed and was occupied with relaxing activity until she appeared to be tired. If the sleep disturbances were eliminated or significantly reduced for 1 week, then bedtime was increased by 15 minutes. Parents established consistent bedtime routines and ways of responding to nighttime awakenings. Parents were instructed not to get into bed with their child or let her get into bed with them at bedtime during a night awakenings. If the child did get out of bed, the parents immediately returned her to bed and left the room.

Results

Bedtime Disturbances: The sleep-restriction program decreased both Sara and Melissa's bedtime disturbances. Implementation of the program allowed Sara's parents to discontinue melatonin use without increasing bedtime disruptive behaviors. Melissa's bedtime disturbances went from 7 times per week to an average of .25 per week, moreover the duration of these "bedtime fits" decreased from 1.05 hours to .01 hours per week.

Night Waking: The sleep-restriction program resulted in a reduction in both the frequency and durations of night awakenings for Sara and Melissa. After the intervention, Sara average 1.43 night awakenings a week and no longer had to sleep in her parent's bed. Melissa's parents no longer had to lie in bed with her and she had a decrease in awakenings to an average of 1.38 per week.

Sleepwalking & Sleep Terrors: After the initiation of the sleep-restriction program, Sara's parents reported that she exhibited 2.3 sleepwalking episodes per week, which decreased as the program continued. She also experienced two sleep terrors (abrupt

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awakening accompanied with intense fear and autonomic arousal – sweating, rapid heartbeat, etc.) during the intervention period. Melissa did not experience any sleepwalking or sleep terrors during the intervention program.

Parent Satisfaction: Both Sara and Melissa’s parents had great increases of satisfaction with their child’s sleep patterns. Both parents reported that the severity of their child’s sleep problems had decreased and it was easier to put them to bed. There was an improvement in parental satisfaction with the child’s behavior at bedtime, the child’s current sleep pattern, and the time it took to put the child to bed.

Conclusion

Using sleep-restriction as a behavioral intervention for sleep disturbances was successful in this case study. Advantages to using the sleep-restriction program include (1) long periods of crying are often prevented and (2) there frequently is no increase in behavior problems. During this study, disadvantages to using sleep-restriction included causing an alteration in the child’s sleep stages (REM sleep vs. NREM sleep), which caused the initiation of sleepwalking and sleep terrors.

Parents of the two children in this study were very satisfied with the results. Prior to the intervention program, Sara’s parents were considering placement outside the home for Sara because her sleep disturbances were so severe. Sara had a decrease in night wakings in the first week of treatment, which was a great relief to her parents. The parents of both children found the sleep-restriction program to be easy and practical to implement.

This case-study brings limited evidence to support the use of sleep-restriction programs to reduce sleep disturbances. Future research should include a larger group of participants and involve a research design with a treatment group and a control group.

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