

## **The Moderating Roles of Bedtime Activities and Anxiety and Depression in the Relationship between Attention-Deficit/Hyperactivity Disorder and Sleep Problems in Children**

**Authors :** Lian Tong, Yan Ye, Qiong Yan

**Abstract :** Background: Children with attention-deficit/hyperactivity disorder (ADHD) often experience sleep problems, but the comorbidity mechanism has not been sufficiently studied. This study aimed to determine the comorbidity of ADHD and sleep problems as well as the moderating effects of bedtime activities and depression/anxiety symptoms on the relationship between ADHD and sleep problems. Methods: We recruited 934 primary students from third to fifth grade and their parents by stratified random sampling from three primary schools in Shanghai, China. This study used parent-reported versions of the ADHD Rating Scale-IV, Children's Sleep Habits Questionnaire, and Achenbach Child Behavior Checklist. We used hierarchical linear regression analysis to clarify the moderating effects of bedtime activities and depression/anxiety symptoms. Results: We found that children with more ADHD symptoms had shorter sleep durations and more sleep problems on weekdays. Screen time before bedtime strengthened the relationship between ADHD and sleep-disordered breathing. Children with more screen time were more likely to have sleep onset delay, while those with less screen time had more sleep onset problems with increasing ADHD symptoms. The high bedtime eating group experienced more night waking with increasing ADHD symptoms compared with the low bedtime eating group. Anxiety/depression exacerbated total sleep problems and further interacted with ADHD symptoms to predict sleep length and sleep duration problems. Conclusions: Bedtime activities and emotional problems had important moderating effects on the relationship between ADHD and sleep problems. These findings indicate that appropriate bedtime management and emotional management may reduce sleep problems and improve sleep duration for children with ADHD symptoms.

**Keywords :** ADHD, sleep problems, anxiety/depression, bedtime activities, children

**Conference Title :** ICCAP 2018 : International Conference on Child and Adolescent Psychiatry

**Conference Location :** Tokyo, Japan

**Conference Dates :** May 28-29, 2018