

EDITORIALS

Child and teen sleep and pandemic-era school

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INTRODUCTION

For most children and adolescents in the United States, routines of daily living have been upended by the COVID-19 pandemic. Many daily activities, including sleep-wake cycles, have been impacted as restrictions altered daily schedules, schooling, and extracurricular activities. Schools largely shifted to virtual learning platforms almost overnight. These immense changes have had the potential for both positive and negative impacts on sleep patterns in children and adolescents. Because the 2020–2021 school year began during the pandemic,¹ the context, locations, and timing of schooling have been worked out community by community across the country, and certainly not without debate and soul-searching by stakeholders. As sleep professionals, we examine the need to prioritize what science has shown regarding sleep in children and adolescents in the face of new educational schedules, which often involve distance learning or a “hybrid” combination of in-person and virtual classes.

Before the pandemic, an abundance of evidence showed that the majority of teens in the United States tend to be sleep-deprived, with widespread negative effects on physical, social, emotional, and public health and safety.^{2–5} A substantial literature exists to support the notion that students of all ages benefit from adequate sleep but often do not achieve it.⁶ Teens, who may be more likely to experience irregular sleep schedules and physiologically delayed sleep-wake timing because of circadian and homeostatic factors,^{7,8} may be at particular risk from the consequences of chronic sleep loss. Some students attempt to compensate for their weekday sleep loss by sleeping in later during the weekends. This creates “social jet lag,” which further exacerbates difficulties transitioning into sleep from weekends to weekdays. This body of literature and economic analyses⁹ have helped propel efforts to implement later school start times in districts and communities across the country, with California being the first to establish a statewide policy in 2019. In addition, both the American Academy of Pediatrics¹⁰ and the

American Academy of Sleep Medicine⁶ have officially supported later start times for middle school and high school students to facilitate healthy sleep outcomes for teens.

What changes in child and adolescent sleep have been identified since the pandemic began?

Since March 2020, when the COVID-19 pandemic began to impact the United States, many students have been attending online classes, both synchronous and asynchronous. The shift to virtual learning and hybrid models has the potential for positive impacts on sleep, including increased total sleep time and related schedule flexibility because of asynchronous and/or home-based lessons. This shift may also allow young people to better match their sleep schedules to intrinsic sleep-wake timing. Interestingly, there is evidence suggesting that teens and young adults do lengthen their sleep in a paradigm of learning at home: Meltzer and colleagues¹¹ studied home-schooled students (grades 6–12), who averaged 49 minutes more sleep per night on weeknights per typical school week than their public and private school peers. Simply not having a commute—and having flexible school start times—added approximately 4 additional hours of sleep per school week for home-schooled students. Emerging data do in fact suggest that the daily routines of children and adolescents have been substantially altered by the pandemic. For example, a recent poll¹² indicated that among 2,067 adults surveyed in May 2020, 46% were letting their children go to bed later, 51% reported letting their children wake up later, and 49% were allowing their children more screen time. Furthermore, data from Italy showed that children were sleeping an additional 30 minutes during the COVID-19 lockdown compared with pre-pandemic sleep times.¹³

Moreover, information from different parts of the world has begun to shed light on changes in sleep in young people since the pandemic began. Among university students at a single institution, Wright and colleagues¹⁴ examined sleep log data from before and after the implementation of stay-at-home orders and found an increase in sleep duration by 30 minutes on weekdays and 24 minutes on weekends. Sleep timing was delayed by

~50 minutes on weekdays and ~25 minutes on weekends, thereby reducing the difference between weekend and weekday sleep timing. This change translated into a reduction in irregularity (ie, social jet lag), and the number of students obtaining 7 or more hours of sleep increased from 84%–92% on weekdays. This finding dovetails with data from somewhat older individuals in their third and fourth decades, for whom social jet lag has also been reported to be reduced.¹⁵ Among younger children, data from Zunyi, Guizhou province in China from caregivers of 1,619 preschoolers confined to their homes because of the pandemic showed later bedtimes and wake times, longer nocturnal and shorter nap sleep durations per 24 hours, and fewer caregiver-reported sleep disturbances compared with data obtained in 2018.¹⁶ Similarly, maternal reports regarding sleep in children aged 6–72 months in Israel indicated a negative change in child's sleep quality and a decrease in sleep duration.¹⁷

ADVISORIES FROM PEDIATRIC AND SLEEP PROFESSIONALS

After the start of the pandemic, the American Academy of Pediatrics acknowledged that some relaxation of screen time restrictions was presumably occurring but that sleep routines and adequate sleep should be maintained.¹⁸ The American Academy of Sleep Medicine recently released a health advisory¹⁹ emphasizing that healthy sleep habits—which include regular bedtimes and wake times, elimination of electronics from the sleep environment, and consistent meal times and exercise—are more important than ever to promote health and well-being in children and adolescents in the setting of routine alterations and stressors related to the pandemic. Similarly, the National Sleep Foundation has released guidelines for maintaining healthy sleep in the pandemic era.²⁰

RISKS AND OPPORTUNITIES

Virtual and hybrid learning models may have a variety of effects on sleep and well-being among children and adolescents, and these impacts are only beginning to be understood. Virtual learning may impact feelings of isolation or have other negative psychosocial effects, particularly in children at risk of being cyberbullied, those with prolonged video-gaming tendencies,²¹ or those for whom the home environment is neglectful, chaotic, or overtly unsafe. According to a recent pandemic-era survey, reports of higher rates of rumination and symptoms of depression and anxiety have surfaced: 55% of teens reported having experienced anxiety, 45% reported excessive stress, and 43% reported depression.²² Among U.S. parents of children aged < 18 years surveyed in June 2020, 14% reported worsening behavioral health for their children, and a substantial proportion of parents reported worsening behavioral and mental health in tandem.²³ There are also rising concerns about social isolation for those with attention-deficit hyperactivity and autism spectrum because of this pandemic.²⁴

Considering these concerns, the recent American Academy of Sleep Medicine health advisory²⁰ emphasized that ensuring adequate sleep is even more important during the pandemic. Although virtual learning may have many positive effects on sleep, there may also be negative effects related to decreased activity and exercise levels during the day, reduced exposure to sunlight, reduced social opportunity, and increased overall stress and anxiety levels.²⁵ For example, a study conducted in Italy found an increase in screen time of approximately 4 hours per day and a significant reduction in physical activity, which when chronic may have independent impacts on sleep and health.¹³ Additional challenges may be presented by hybrid plans, which could cause instability in sleep schedules day by day as families adjust to transportation schedules and staggered school start times, especially in the context of altered parental work and caregiving schedules.

In such scenarios, stable bedtimes and wake times, along with daily routines, are encouraged,²⁶ but at times this may be easier said than done. We still have much to learn about the sleep quality and sleep schedules of children and adolescents in the context of the COVID-19 pandemic, and we believe this is an area of study that is critically important for mental and physical well-being in addition to educational progress and achievement.

CONCLUSIONS

As the school year progresses during this pandemic and hybrid plans are being issued and reissued, it is critical to maintain educational schedules that consider and prioritize what science has shown regarding sleep in children and adolescents. In addition, it is important to focus on common-sense strategies: For example, families should maintain household routines and avoid excessive pandemic-related media coverage, exposure that has been shown to contribute to worsening sleep, at least acutely.²⁷ Adequate sleep and daytime schedules may be linked to resilience, a valuable asset for children and adolescents in these difficult times. Now is the time to reinforce good sleep habits, along with good nutrition and regular physical activity, to best empower children and adolescents to navigate the “brave new world” of online and hybrid schooling, boosting their resilience as they encounter social and economic stressors beyond their control.

CITATION

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