



SPN Informational Paper: School Start Times for Adolescents

INTRODUCTION AND PROBLEM STATEMENT

The indiscriminate functions of sleep, namely its role in facilitating neural reorganization, repair, and metabolic clearance, are essential and necessary elements of healthy brain development, physiologic and executive functioning, and emotional regulation. Adolescents, ages 13 to 18 years, require 8 to 10 hours per 24 hours of sleep on a regular basis to promote optimal health (Paruthi et al., 2016). Regular attainment of the recommended hours of sleep is associated with better health outcomes among pediatric populations, including improved attention, behavior, learning, memory, emotional regulation, quality of life, and physical health (Paruthi et al., 2016, p. 785). A cadre of evidence supports the link between acute and chronic levels of insufficient sleep to adverse outcomes among adolescents which include but are not limited to impairments in attention, memory, behavior control, and executive function; impairments of physiological functioning (i.e., obesity, hypertension, diabetes); increased prevalence of emotional dysregulation and psychological maladies; substance use; risk-taking behaviors; unintentional injury; violence; and poor academic performance (Hines, 2020; Wheaton et al., 2016).

Amid contemporary societies sleep deprivation is common owing to the presence of biological, behavioral, lifestyle, and policy factors, acting individually or in concert, that contribute to the observance of a two-fold issue: late bedtimes and early rise times. Biologically, the presence of a neurodevelopmental disorder, chronic health condition, parasomnia, or dyssomnia may delay sleep onset and adversely impact sleep duration and quality. Additionally, adaptive changes in the circadian rhythms that occur at the onset of puberty naturally delay adolescent sleep onset and wake times up to 2 hours when compared to the sleep-wake cycles of middle childhood (American Academy of Pediatrics Adolescent Sleep Working Group, Committee on Adolescence and Council on School Health, 2014). Behavioral factors such as caffeine consumption, the availability and rising use of electronic devices in home, social, and academic environments, rigorous academic curricula, and participation in extracurricular and afterschool activities are extrinsic contributors to dyssomnia. Limited rules governing the use of electronic devices and lack of institution of consistent bedtimes, as well as lifestyle factors such as low socioeconomic status and the inhabitation of abusive and impoverished environments have also been cited (Wheaton et al., 2016).

Early rise times amidst school days are primarily influenced by school start times (Wheaton et al., 2016). Grade level and sleep duration have, for long, demonstrated an inversely proportional relation; the latest poll data disseminated by the National Sleep Foundation (NSF) (2006) pertaining to teens and sleep indicated that only 9% of high school adolescents obtain optimal amounts of sleep on school nights compared to 35% of 6th and 8th grade adolescents (p. 7). Overall, 76% of surveyed adolescents reported obtaining either borderline (8 to less than 9 hours) or insufficient (less than 8 hours) amounts of sleep on school nights (NSF, 2006, p. 7). An additional study aimed at examining the prevalence of sleep duration on an average school night among a representative sample of students in the US indicated that approximately 60% of middle school students reported obtaining less than 9 hours of sleep on weeknights; Only 7% of high school students reported obtaining 9 hours or more of sleep per weeknight (Basch et al., 2014). Delaying school start times to a time of no earlier than 8:30 AM is supported by evidence to be a policy driven measure by which the issue of chronic sleep loss can be remedied with demonstrable benefits for the physical and psychological health, safety, and aptitude of adolescents.

RATIONALE AND SUPPORTING INFORMATION

Delaying school start times for adolescents increases sleep duration as a direct consequence of later rise times. In a review of 38 reports examining the association between school start times, sleep, and other outcomes among adolescent students, Wheaton et al. (2016) recounted that in nearly all studies students that attended schools with later start times reported longer sleep duration and were less likely to report daytime sleepiness or falling asleep in class (p. 375). Data from a small number of the examined studies connected delayed school start times to decreases in napping, caffeine consumption, and the prevalence of “catch-up” sleep on weekends among adolescents (Wheaton et al., 2016). Among the adolescent population, a correlation between delayed school start times and academic performance improvements, decreased reports of experiencing symptoms of depression, and decreases in the occurrence of motor vehicle crashes, the leading cause of death among teens, was also consistently established among several studies (Wheaton et al., 2016). Also of note, based upon an analysis of figures generated from a simulated predictive model, Hafner et al. (2017) postulate that in most states within the US, the economic benefits for delaying school start time would outweigh the costs within 5 years after making the change (p.454).

RECOMMENDATIONS

Pediatric nursing professionals should act to facilitate open discussions concerning current evidence with adolescents and their families at the point of service and encourage the institution of evidence-based school policies at community, state, and national levels. In the face of overwhelming evidence in support of delaying school start times for adolescents, the presence of confounding factors related to the data and the limited exploration of the impact the change would have on families, communities, the educational system, and other key stakeholders is compelling. This gap in knowledge presents a unique opportunity for pediatric nursing professionals to engage in original research that has the potential to inform educational policy and influence the health and well-being of the adolescent population.

In the interim, efforts should be made to partner with adolescents and their families in optimizing elements that impact sleep quality and duration that are under their control. To answer this charge, SPN recommends that pediatric nurses engage in the following health promotion efforts:

- Facilitate educational interventions among adolescents, families, and the public during which the significance of sleep; biological, behavioral, lifestyle, and policy factors that contribute to sleep deprivation; healthy sleep practices; the sequelae of sleep deprivation; and strategies for the prevention and management of sleep problems are discussed.
- Support caregivers in their efforts to establish and reinforce boundaries concerning the use of electronic devices and the institution of age and developmentally appropriate bedtimes.
- Partner with other healthcare professionals to identify children at risk for parasomnias and dyssomnias.
- Serve in an advisory capacity to key community stakeholders (i.e., educational institutions and individuals or organizations responsible for the care or supervision of children).

REFERENCES

American Academy of Pediatrics Adolescent Sleep Working Group, Committee on Adolescence and Council on School Health. (2014). School start times for adolescents. *Pediatrics*, 134(3), 642-649. www.pediatrics.org/cgi/doi/10.1542/peds.2014-1697

Basch, C.E., Basch, C.H., Ruggles, K.V., & Rajan, S. (2014). Prevalence of sleep duration on an average school night among 4 nationally representative successive samples of American high school students, 2007-2013. *Preventing Chronic Disease: Public Health Research, Practice, and Policy*, 11(E216), 1-5.

Hafner, M., Stepanek, M., & Troxel, W.M. (2017). The economic implications of later school start times in the United States. *Sleep Health*, 3, 451-457. <https://doi.org/10.1016/j.sleh.2017.08.007>

Hines, S. (2020). Sleep. In D.L.G. Maaks, N.B. Starr, M.A. Brady, N.M. Gaylord, M. Driessnack, & K.G. Duderstadt (Eds.), *Burns' pediatric primary care* (7th ed., pp. 281-292). Elsevier.

National Sleep Foundation. (2006). Teens and sleep. https://www.sleepfoundation.org/wp-content/uploads/2018/10/2006_summary_of_findings.pdf

McKeever, P.M., & Clark, L. (2017). Delayed high school start times later than 8:30 AM and impact on graduation rates and attendance rates. *Sleep Health*, 3, 119-125.
<http://dx.doi.org/10.1016/j.sleh.2017.01.002>

Paruthi, S., Brooks, L.J., D'Ambrosio, C., Hall, W.A., Kotagal, S., Lloyd, R.M., Malow, B.A., Maski, K., Nichols, C., Quan, S.F., Rosen, C.L., Roester, M.M., & Wise, M.S. (2016). Recommended amount of sleep for pediatric populations: A consensus statement of the American Academy of Sleep Medicine. *Journal of Clinical Sleep Medicine*, 12(6), 785-786. <http://dx.doi.org/10.5664/jcsm.5866>

Wheaton, A.G., Chapman, D.P., & Croft, J.B. (2016). School start times, sleep, behavioral health, and academic outcomes: A review of the literature. *Journal of School Health*, 86(5), 363-381.

www.pedsnurses.org
Society of Pediatric Nurses
330 N. Wabash Avenue, Suite 2000
Chicago, Illinois 60611
312-321-5154