



BROWN



Bradley Hospital
A Lifespan Partner

Published in cooperation with Bradley Hospital

January 2015

Vol. 31, No. 1 • ISSN 1058-1073

Online ISSN 1556-7575

Highlights...

In this month's top story, Dr. Julie Boergers discusses the benefit of later school start times in managing the chronic sleep deprivation many teens and adolescents experience.



Keep Your Eye On... See page 2

- The role of polycyclic aromatic hydrocarbon exposure in ADHD
- Social interventions for autism in toddlers parents can use

What's New in Research... See pages 3–5

- Living in disadvantaged counties linked to behavior problems among children with cognitive delays
- Cyberbullying linked to mental health problems in teens; protective factor seen in family dinners

Editor's Commentary

- How the news surrounding Ebola can impact children in America
— By Gregory K. Fritz, M.D.

See page 8



Free Parent Handout...



The Power of
Advertising — Teach
Your Children to Be
Informed Consumers

CABL

School Start Times

Benefits of later school start times

By Julie Boergers, Ph.D.

Sleep deprivation has become virtually epidemic among American teenagers. Research suggests that adolescents require about 8.5 to 9.5 hours of sleep, but according to the National Sleep Foundation, only 14% achieve this goal, and approximately 70% of adolescents obtain less than 8 hours of sleep on a typical weeknight. This chronic sleep debt can have very serious consequences for the developing brain and body. Adolescents who do not achieve sufficient sleep are more irritable and depressed, and are at greater risk for suicidal ideation and suicide attempts than their peers. Chronic sleep deprivation can also undermine health, particularly metabolic and immune function, and can predispose adolescents to obesity. In addition to the effects on physical and mental health, research has also

shown that inadequate sleep has a major impact on learning, memory, motivation, and academic performance. Sleep deprivation is associated with deficits in executive function, which includes organizational skill, working memory, and ability to apply sustained effort. These deficits are especially apparent on more complex tasks, and those that require abstract thinking.

Why can't adolescents get enough sleep?

Early school start times are a significant — and modifiable — contributor to insufficient sleep among adolescents. Beginning in the 1970s, many American high schools began starting earlier than ever before, in response to a number of factors, including shrinking school budgets and transportation
See School Start Times, page 5...

Significance of Chores

The developmental significance of chores: Then and now

By Richard Rende, Ph.D.

Do chores have developmental significance? In writing a White Paper to help understand what current published research says about chore participation and its benefits (Rende, 2015), it became clear that while chores have been influential in childhood and adolescence, the type of impact on daily family life has changed over the decades. Here I will sketch out three discernible trends I identified, and offer a viewpoint for the next staging in our professional thinking.

Three trends in research on chores

First, there was a consistent stream of influential papers published more than a

decade ago proposing that regular participation in chores and household responsibilities carried multiple developmental benefits. There were review papers that cast chores as a healthy and proactive component of family routines and rituals that promote a sense of family cohesion and positive functioning in the home. Other studies, including more recent ones, reported benefits in terms of engagement in school and academic performance, reduced behavioral problems (both internalizing and externalizing), and protection from early drug use. Influential longitudinal studies, tracking from childhood
See Significance of Chores, page 6...

“rarely,” “sometimes,” or “often” as possible responses. The occurrence of face-to-face bullying was measured by the Bullying and Victimization subscales of the University of Illinois Aggression Scales, which measure the frequency of being picked on, made fun of, called names, and hit or pushed by other students.

The survey also measured five internalizing problems (anxiety, depression, self-harm, suicide attempt in past year, and suicidal thoughts in past month) and two externalizing problems (physical fighting and vandalizing property in the previous month), as well as four substance use problems that may represent attempts to cope with cyberbullying (drunkenness or binge drinking in the past month, and prescription drug or over-the-counter drug misuse during the past year).

Finally, students were asked how many days a week they had evening meals with their family, with a range from 0 to 7.

Results

About one-fifth (18.6%) of the sample had experienced cyberbullying during the past year. The more frequent this was, the greater the chance the teen would have a mental health or substance use problem, across all 11 measures.

The link between cyberbullying victimization and mental health or substance use problems was weaker among teens who had more family dinners.

The most commonly reported mental health problem was depression (18.9%); suicide attempts (4.8%) and prescription drug misuse (6.4%) were less common. Cyberbullying victimization was experienced by 18.6% of the sample at least once in the past year; only 2.2% experienced it often. More girls than boys were cyberbullied, increasing with year of age and involvement in face-to-face bullying.

The number of family dinners per week was negatively related to the odds of cyberbullying.

In general, the odds of substance use problems and externalizing problems were lower in girls than boys, and the odds of internalizing problems were higher in girls than boys.

Low household income was related to higher odds ratios of internalizing and externalizing problems, and over-the-counter drug use.

Face-to-face bullying was related to higher odds ratios for all health problems. Cyberbullying also was related to elevated odds ratios. Teens who were most often victimized, compared to those who were never victimized, had more than twice the odds ratios of having been drunk, gotten into a fight, vandalized property, and had suicidal thoughts; more than three times the odds ratios of binge drinking, high anxiety, self-harm, and suicide attempt; and more than four times the odds ratios of misusing prescription drugs and over-the-counter drugs.

Implications

Even after controlling for exposure to face-to-face bullying, cyberbullying was found to be related to every mental health and substance use measure, suggesting that prevention of cyberbullying is a legitimate focus of interventions. The researchers also found a moderating influence of family dinners on mental health and substance use problems.

The researchers cited previous studies to justify the use of family dinners as a proxy for family contact and communication. “With more frequent dinners comes more regular family contact, which facilitates parental guidance and support, open communication with parents and siblings, and opportunities for adolescents to express problems and concerns as they arise,” the researchers

wrote. “Therefore, family dinners are indicative of a broad set of family characteristics that may promote adolescent health and buffer the impact of stressful situations on adolescent functioning.”

The large sample size and the assessment of multiple health domains is a strategy of the study, the researchers write, adding that including data about self-harm and suicidal thoughts is rare in pediatric literature, and “helpful in documenting the level of distress associated with cyberbullying.”

The researchers also cite the “practical information to families” in the focus on family dinners as a way to support adolescents who are victims of cyberbullying.

However, the researchers stress that they could not conclude either that cyberbullying alone can produce poor health outcomes, or that family dinners alone can protect against the effects of cyberbullying. The social environment has other exacerbating as well as protective factors, they noted. Instead, these findings support “calls for integrated approaches to protecting victims of cyberbullying that encompass individual coping skills and family and school social supports,” they conclude. “Given the evidence that peer and parent support can moderate the association between bullying and health outcomes, it is important to identify the mechanisms through which these positive outcomes can be achieved. This study suggests that regular family dinners are one such mechanism. However, future research should consider other sources of social support that help reduce cyberbullying and its harmful effects on adolescent health.”



Elgar FJ, Napoletano A, Saul G, et al. Cyberbullying victimization and mental health in adolescents and the moderating role of family dinners. *JAMA Pediatr* 2014 Nov 1; 168(11):1015–1022. E-mail: frank.elgar@mcgill.ca.

School Start Times

From page 1

logistics. Currently, about 40% of American high schools start before 8:00 a.m. Many start at 7:30 a.m. or even earlier. A typical student needs to wake up by 6:30 a.m. or earlier to arrive at school on time; this student would need to be asleep by 9:00 p.m. in order to obtain adequate sleep for their age.

However, this is difficult to near-impossible for teenagers, given both societal influences and circadian changes. The circadian timing system in the brain, which is mainly controlled by melatonin, “switches on” later at night as adolescents mature. This “phase delay” causes later sleep onset and wake-up times for adolescents. Coinciding with this phase delay, there are modern pressures that make it easier to stay up late,

particularly cell phones, tablets, and video games. Increasing amounts of homework, extracurricular activities, and employment also contribute. However, even for teens with impeccable sleep hygiene who are able to “power down” at night, they are essentially “programmed” to fall asleep later due to the biologically based shift in their sleep phase. Thus, many have suggested

Continued on next page...

Continued from previous page...

that schools should consider more closely aligning school schedules with adolescents' circadian rhythms and sleep needs.

Benefits of later school start times

A small but growing number of school districts have undertaken initiatives to delay start times and examine the impact on students. These studies have shown that starting schools later not only helps students get more sleep, but also confers a number of important associated benefits related to health (lower rates of depressive symptoms), safety (lower rates of car crashes), academic performance (lower drop-out rates, fewer absences and tardies, improvements in standardized reading and math scores), and quality of life (improved sports performance). For example, in Lexington, KY, the automobile crash rate for adolescent drivers decreased by 16.5% after delaying high school start times by one hour. In Minneapolis, MN, more than 18,000 students were assessed before and after the district changed its start time from 7:15 a.m. to 8:40 a.m. After the later start time, students reported obtaining almost an hour more sleep per night, and this was associated with reduced fatigue, reduced school absences, and an increase in the percentage of high school students continuously enrolled.

In our own group, we studied an experimental manipulation of start time at an independent boarding school (Boergers, Gable, & Owens, 2014). During the fall and spring terms, school started at 8:00 a.m., but during the winter term, school started at 8:25 a.m. We found that even this modest 25-minute delay in school start time resulted in reductions in depressed mood, caffeine use, daytime napping, tardiness to class, and falling asleep in class. During the winter term (later start time), the students obtained 29 more minutes of sleep per night, and the percentage of students obtaining 8 or more hours of sleep per night more than doubled. However, when the school schedule returned to the earlier start time in the spring, students' sleep duration went

right back to baseline levels. This study was unique in using an "ABA" research design, in which there are three phases: a baseline period (A), followed by a period in which the experimental change is introduced (B), and then a period in which the experimental change is removed so the behavior can be observed again (A). This type of design increases confidence that the later school start time (rather than some other variable) was responsible for the improvements observed in conjunction with the later start time during the winter term.

Barriers to change

In light of the compelling evidence for the health, safety, and educational benefits for students, why haven't more high schools adopted later start times? There are a number of common objections. First, many people believe that if schools start later, adolescents will simply go to bed later, negating the benefit of the later start time. But in our study, we found that bedtimes did not change when the school start time was moved later, so the later school start time resulted in more sleep. This finding has been replicated in other studies. Another common concern is whether busy students will still have time to engage in all their activities if dismissal time is pushed later. But we found that the later school start time had no effect at all on the number of hours students spent playing sports, doing activities, or doing homework. In fact, they rated themselves as feeling less tired and having more energy to do their homework. Finally, there are a number of objections related to logistical challenges, including bus schedules, athletics, after-school child care and employment, and traffic. Nonetheless, an economic analysis conducted by the Brookings Institution in 2011 estimated a benefit to cost ratio of 9:1, concluding that the costs to communities (related to changes in bus-ing, etc.) were quite low in comparison to the short- and long-term financial benefits to society (for example, higher achievement scores translating to greater earning potential).

Policy implications

The American Academy of Pediatrics (2014) recently weighed in on this issue; given that the benefits of later school start times are clear, measurable, and meaningful, they published a policy statement recommending that middle and high schools should start at 8:30 a.m. or later. This goal may take some time to achieve; the National Center for Education Statistics reports that only 14% of American public high schools currently meet this guideline. The rationale for this recommendation is that it is biologically difficult for most adolescents to fall asleep before 11 p.m., and that they would need to sleep until at least 8:00 a.m. for optimal health and academic performance. Although decisions about the timing of school starts are complex and present logistical challenges, many school systems have successfully implemented these changes, which could confer a major public health benefit. At the same time, there is recognition that later school start times are unlikely to be a panacea to cure the problem of insufficient sleep among adolescents. Teenagers need to be educated about the critical importance of sleep for their health and learning. Parents also need to be encouraged to set (and enforce) household rules about regular bedtime for teens, as well as limits on evening electronic usage.



Julie Boergers, Ph.D., is an associate professor (clinical) in the Departments of Psychiatry and Human Behavior and Pediatrics at the Alpert Medical School of Brown University, and co-director of the Pediatric Sleep Program at Hasbro Children's Hospital in Providence, Rhode Island.

References

- American Academy of Pediatrics. Policy statement: School start times for adolescents. *Pediatrics* 2014; 134(3):642-649.
- Boergers J, Gable CJ, Owens JA. Later school start time is associated with improved sleep and daytime functioning in adolescents. *Journal of Developmental and Behavioral Pediatrics* 2014; 35(1):11-17.

Significance of Chores

From page 1

through adulthood, positioned chores as a surprisingly influential factor that offered

strong prediction of positive mental health in adulthood and professional success.

There have not been published studies refuting these developmental benefits of chores. However, a *second trend* has been

the recognition that the level of participation in chores and household responsibilities has been decreasing across generations. Studies have illuminated the declining percentage of time devoted to chores by chil-

Copyright of Brown University Child & Adolescent Behavior Letter is the property of John Wiley & Sons, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.