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Research Advocacy Project

Strategies for Sleep Deprivation in Teens

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Introduction

Getting enough sleep is vital towards growth in humans, especially teenagers. As a school counselor, advocating for a later start time at school for students would mean seeing an improvement in cognitive function, alertness, and physical and mental wellbeing for some students. Other additional benefits of regular sleep are also improved grades, standardized test scores, and even a reduction in teen car accidents (Lahey, 2014). This paper will evaluate methods and evidence-based practices from schools that have been successful in implementing a later start time for their students as well as reducing the achievement gap.

Risk of Teenage Sleep Deprivation

According to a 2014 study done by National Sleep Foundation, teenagers need at least nine and a half hours of sleep every night. The poll done in 2014 reported that "less than half of American children get at least nine hours of sleep each night, and 58 percent of 15- to 17-year-olds regularly sleep fewer than seven hours each night" (Lahey, 2014). Teenagers do not produce melatonin until later in the night, making them only sleep around 6 to 7 hours per night (Andersen, 2019).

During slow wave sleep, growth hormones are secreted, making sleep essential for growth (Leger et al., 2012). Sleep has also been proven in playing a major role in cardiovascular, respiratory, immune and thermoregulatory processes which "contribute to daytime brain functioning and body homeostasis (Leger et al, 2012). And of course, brainpower and memory. Sleeping facilitates in your cognitive and psychological processes, including "learning and memory consolidation, as well as emotional memory and processing" (Leger et al, 2012). When deprived, humans can see fluctuations in cognition and mood, as well as increased likelihood to

anxiety, accidents, and many health risks. A short literature review provides these risks targeted towards young adults:

> Acute sleep deprivation (defined as sleeping 25–50% of a normal 8 h night's sleep) contributes to increased inflammation and disturbs the immunological response. As adolescence is considered a particularly vulnerable period during which physiological, psychological and cognitive processes undergo maturation, it could be hypothesized that short sleep and sleep deprivation would have a worse effect in this group than in young adults both in the short and in the long terms (Leger et al, 2012).

Puberty happens during teenage years, and due to the rapid changes in their bodies, their bodies' internal clock shifts to feel sleepy around 10 or 11pm, instead of 8 or 9pm (UCLA Health, 2020). Causes for a lack of sleep for teens could include: their changing bodies, busy schedules, active social lives, and a wrong view of sleep (UCLA Health, 2020). Importantly, a long day at school and early start times combine to make it harder for students to get to sleep on time. In severe cases, a lack of sleep can even result in obstructive sleep apnea and narcolepsy (UCLA Health, 2020).

In a 2006 poll from the National Sleep Foundation, "45 percent of adolescents in the United States said they slept for an insufficient length of time on school nights, and 19 percent of students said they fell asleep in school at least once a week" (Doyne, 2019). Students who sleep more also reported better mental health outcomes, less substance abuse, improved attendance and enrollment rates, less likely to drive while drowsy (Doyne, 2019),

Classroom attention demands that students participate and are mentally engaged in activities. UCLA Health shares that some young people who suffer from a lack of sleep could be dismissed as having ADHD. ADHD and sleep problems share some common symptoms: trouble concentrating, mood swings, hyperactivity, nervousness and aggressive behavior (UCLA Health, 2020). Car crashes related to drowsy driving has reached to more than 1,550 people every year. These crashes are mostly caused by young people under the age of 25 (UCLA Health, 2020).

Scientific facts point at sleep regulation as two processes: a sleep homeostatic process like mentioned earlier, and a circadian process (sleep-independent) both working to promote stable sleep (Sharman, 2019). The literature review below correlates how physiological changes affect the teenager's sleep cycle.

> During adolescence, there is a gradual shift in sleep/wake timing, with bedtimes being significantly later on non-school days compared to school days, reflecting changes in the circadian sleep drive. A meta-analysis conducted on adolescent bedtimes indicated that this disparity between school night and free night bedtimes grows with age. Further, this disparity appears to be related to pubertal development. Indeed, self-reported 'eveningness', a later chronotype (preferred sleep/wake timing), appears to rise from 10 years of age, resulting in a discrepancy of 1–3 hours between fixed schedule (school) days and free days. Early studies indicated that the oscillation period of the intrinsic circadian rhythm lengthens during puberty. As the oscillation period lengthens, there is a delay in the circadian clock, which may explain an adolescent's drive to go to bed later (Sharman, 2019).

School and Sleep

A strong supporter in later start times for schools, The American Academy of Pediatrics recognizes that insufficient sleep in adolescents as a public health issue and for school districts to make changes in order to optimize sleep and alertness for students (American Academy of Pediatrics, 2014). School districts, such as one in Seattle, began a shift in later start times in the 2016-2017 school year. The district moved the time from 7:50am to 8:45am. They found the following changes:

> Researchers at the University of Washington studied the high school students both before and after the start-time change. Their findings appear in a study published Wednesday in the journal *Science Advances*. They found students got 34 minutes more sleep on average with the later school start time. This boosted their total nightly sleep from 6 hours and 50 minutes to 7 hours and 24 minutes (Neighmond, 2018).

With these new in-times, also came an improvement of grades and reductions in tardiness and absences (Neighmond, 2018). Consistently with another study of high schoolers in Seattle, a study looked at students who took the same biology class after the later start time. Students with

the later start time received "final grades that were 4.5 percent higher than students who took the class when it started earlier," presenting evidence that sleep deprivation makes it more difficult to learn and retain new information (Neighmond, 2018).

Due to changes in their biological clocks, teens would see an improvement overall when starting school after 8:30am. Delaying school start times is an intervention that should be put into place with school districts across the world. A study recently evaluated adolescent sleep using an actigraphy across a number of US schools with start times after 8:30am. This found that those students slept significantly longer than students at schools which started earlier (Sharman, 2019).

Other Factors that Disrupt Sleep

The Center for Disease and Control reported in 2014 that about 90 percent of high schools and 80 percent of middle schools in the nation have start times before 8:30am (Doyne, 2019). The dangers of sleep deprivation are high, amongst other factors that contribute to the cause. These other factors that disrupt sleep cycles for teens are drinking caffeine throughout the day and overusing electronics. Limiting time on technology use and light exposure in evenings are helpful for a better night's sleep (CDC, 2020). The following literature review presents facts on psychosocial influences on sleep and a 2017 study:

> Evaluations of the USA 2017 Youth Survey ($n = 14\,603$) found that adolescents who engaged in excessive screen time, defined as over three hours of usage per day, were 1.34 times more likely to also report an inadequate sleep duration, defined as less than 8 hours' sleep on a school night. In a study where screen time was reduced after 9 p.m., time taken to fall asleep was reduced, total sleep time increased and daytime attention improved. Poor sleep environments, negative family relationships, extracurricular clubs/activities, and homework were other cited barriers to sleep (Sharman, 2019).

Combatting this issue of teenage sleep deprivation could mean wonders for teachers, faculty and school counselors. For teachers, it could mean that students would be more present in class, with less truancy, absences and tardiness. Importantly, students would come to classes more focused

and ready to learn. For school counselors, it could mean less time working on interventions that target sleep education and more time working on other wellness curriculum.

If this policy is not ready to be adopted for school districts, district officials should consider starting with a one-day of the week later start time at school. It is recommended that this day should fall in the middle of the week.

Another solution is to include sleep education curriculum to all students starting from the middle school level. If students start learning about the importance of sleep from a young age and the risks that sleep deprivation come with, it could help shape healthy habits and see a growth in teenagers limiting electronic use and finding more time for balance and sleep. Lastly, the following statements asserts more of risks aligned with sleep deprivation:

> The American Academy of Pediatrics strongly supports the efforts of school districts to optimize sleep in students and urges high schools and middle schools to aim for start times that allow students the opportunity to achieve optimal levels of sleep (8.5–9.5 hours) and to improve physical (eg, reduced obesity risk) and mental (eg, lower rates of depression) health, safety (eg, drowsy driving crashes), academic performance, and quality of life (American Academy of Pediatrics, 2014).

Advocacy in Action

Identify the problem –

Sleep deprivation is too common among adolescents, when adolescents need to be sleeping for at least 8 or more hours to contribute to their growth and mental/physical health.

Additional information –

This paper evaluates research and evidence-based practices that work for schools in order to combat sleep deprivation.

Identify the stakeholders –

Stakeholders would include parents, teachers, faculty, district and statewide officials, students and school counselors.

Research the advocacy history of the problem –

Several sources are included in this paper to provide information on effects that sleep deprivation have on students, as well as risk factors that correlate when they do not get enough sleep. Some of these factors are: drowsy driving, alcohol and substance abuse, tardiness and absences, memory less, fluctuations in moods, decreased cognitive performance, and lowered academic performance.

Identify the institutional and/or environmental barriers contributing to the problem –

Because teens spend their adolescent years in schooling, the concentration is on school performance. Therefore, school start times should be looked at as a barrier for their lack of sleep. Other environmental factors include use of electronic devices and consuming caffeine.

Action plan and specific strategies –

The action plan should include that city and state school officials evaluating the risks of sleep deprivation and making changes for school policies to include either later start times that fall after 8:30am, lessons on sleep education for students starting in the 7th grade, and/or including one or two days of late start times during the week for their students.

How will I evaluate effectiveness?

Organizations and schools should measure success by studying data and performing tests and studies on schools with students who have later start times or any of the above-mentioned strategies. The timeline could fall anywhere between one month to one year.

Conclusion

As a school counselor, my purpose is to facilitate wellbeing for all students. Counselors and teachers work hard to reduce the achievement gap, and making a change in school policy to have a later start time is one way. This shift in later start times in schools, as well as any other

strategies to provide support in sleepy students is seen as beneficial. Issues that arise could be that parents might need to find other methods to send or pick up their kids. Another issue might be extracurricular activities after school. However, being that adolescents have a biological clock that changes in their high school years that makes that fall asleep much later, the later times at school are still seen as more successful and obtainable than rising at 6 or 7am to be at school at 7:30am.

As Wendy Troxel, sleep scientist states, “These early start policies have a direct effect on how much or really how little sleep American teenagers are getting. They’re also pitting teenagers and their parents in a fundamentally unwinnable fight against their own bodies” (Troxel, 2017).

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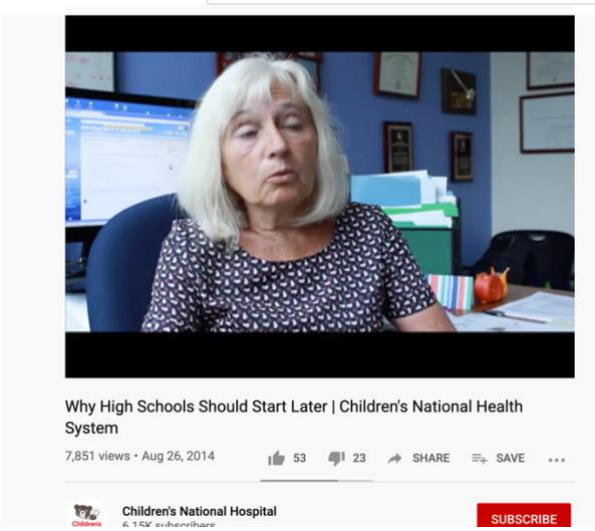
Appendices



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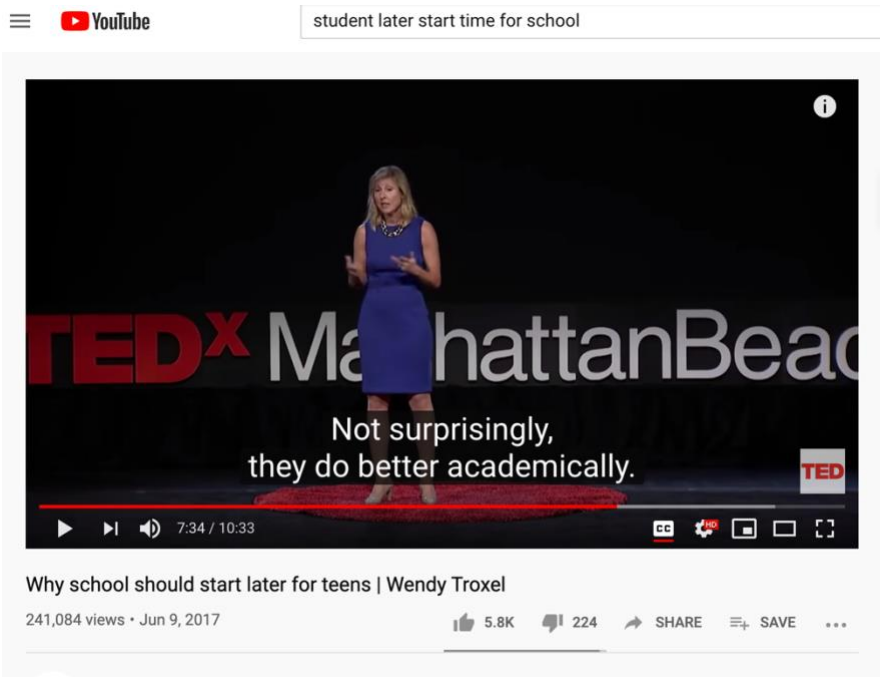

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