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Teenage Sleep Deprivation and How Schools Can Help

Like it or not, teenagers are the future of society. The next generation. Just as it has always been: they will take over jobs, run hospitals and businesses, repopulate the globe, and progress the discoveries made. It happens to every generation, and the pattern will continue, just not quite yet. Right now our teenagers are in high school learning. School is supposed to give our students everything they need to succeed and introduce them to how to live successfully, but with their current environment, schools just continue to deprive students of incredibly vital sleep, something crucial to their learning. With such a widespread and undeniable problem, why is change yet to be made?

It is a widely known fact that sleep is beneficial and necessary for the body to recharge and function properly. Without sleep, humans become zombies, unable to properly function in society. This is no different for teenagers. The detriments of sleep deprivation, especially in adolescents, are extreme. *The Journal of Clinical Sleep Medicine* came to a consensus in 2016, stating that “teenagers sleeping less leads to problems with attention, behavior, and learning, it increases the risk of accidents, injuries, hypertension, obesity, diabetes, depression, self-harm, suicidal thoughts, and suicide attempts” (Paruthi et al.). The American Academy of Pediatrics is a well-respected, scientific, medical organization; and they have several statements on teenage sleep deprivation, including a table (depicted on the following page), that specifies and adds on to the ideas discussed in the *Journal of Clinical Sleep Medicine*. (Auet al.). The effects of sleep deprivation are numerous and extremely negative, causing not only mental health problems but also harm to physical health and academic performance. Despite these debilitating consequences, an intense lack of sleep is still significantly present in students. The American Academy of

Pediatrics has found that “87% of high school students in the United States were getting less than the recommended 8.5 to 9.5 hours of sleep on school nights”(Au, Rhoda, et al.). The standard combat to this, traditionally, would be partaking in a stimulant, such as caffeine. While many adults can be seen slugging into work with their daily cup of coffee, teenagers take it one step further with energy drinks. Energy drinks have more concentrated caffeine than a standard cup of coffee, yet it is not uncommon to see high school students downing several

Physical health and safety
Increased obesity risk
Metabolic dysfunction (hypercholesterolemia, type 2 diabetes mellitus)
Increased cardiovascular morbidity (hypertension, increased risk of stroke)
Increased rates of motor vehicle crashes (“drowsy driving”)
Higher rates of caffeine consumption; increased risk of toxicity/overdose
Nonmedical use of stimulant medications; diversion
Lower levels of physical activity
Mental health and behavior
Increased risk for anxiety, depression, suicidal ideation
Poor impulse control and self-regulation; increased risk-taking behaviors
Emotional dysregulation; decreased positive affect
Impaired interpretation of social/emotional cues in self and others
Decreased motivation
Increased vulnerability to stress
Academics and school performance
Cognitive deficits, especially with more complex tasks
Impairments in executive function (working memory, organization, time management, sustained effort)
Impairments in attention and memory
Deficits in abstract thinking, verbal creativity
Decreased performance efficiency and output
Lower academic achievement
Poor school attendance
Increased dropout rates

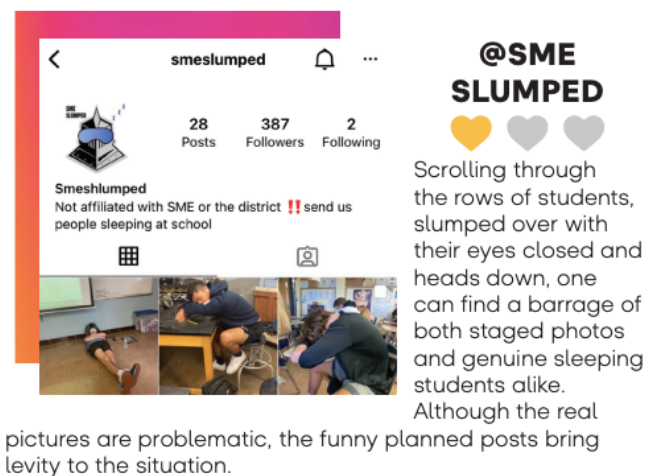
a day. This increased intake of caffeine leads to its own health problems, but is it worth it?

According to William D.S. Kilgore’s section in the *Progress in Brain Research* medical journal, coun Kilgore focuses on the biology of sleep deprivation, highlighting the loss of cognitive function. With no real solution, how are high school students supposed to get the most out of their education? It can be agreed upon, by every respected medical journal that the

consequences of sleep deprivation are deep. How are students expected to fully learn, grow, and complete work with impairments of motivation, energy, and memory? Why is it so acceptable to ignore the problem leading to so many depressed and suicidal teens? High schools should be doing what they can to avoid mental health problems in their students, if not for the student body's well-being, then for their own ratings, test scores, and dropout rates.

High school students usually have a lot going on in their lives. It often goes unnoticed or underrated, and there are still countless teens going into burnout every single day. These high-achieving, involved students tend to be the most susceptible to chronic, severe sleep deprivation. Ruthann Richter is the head of Stanford Medicine's communication and public relations department, and in her article *Among teens, sleep deprivation an epidemic*, she shines light on the burnout so common in high-achieving students. The article begins with the routine of Carolyn Walworth, a 17-year-old high school student. Richter goes through how difficult it becomes for her to follow an extremely taxing schedule. “[Carolyn] reaches a breaking point around 11 p.m., when she collapses in tears. For 10 minutes or so, she just sits at her desk and cries -- [s]he finally crawls into bed around midnight or 12:30 a.m. -- The next morning, she fights to stay awake in her first-period U.S. history class, which begins at 8:15” (Richter).. This schedule, accounting for about an hour to get ready for school the next day, leaves Walworth with only around seven or so hours of sleep. Seven hours may not seem too far away from the recommended 8.5-9.5, but when dealing with all the pressure high school brings, every minute counts. The question then becomes, well, why don’t these students just go to sleep sooner? Richter continues with explaining the attractive option of skipping such precious sleep in teen years. “[T]he pressure on teens to succeed is intense, and they must compete with a growing number of peers for college slots that have largely remained constant”(Richter). Not only are

there academic and social pressures but also biological and psychological factors. “Going online after high-pressure work is a relief, yet it increases the delay in circadian rhythm from teens”(Richter). A lot of students are involved in after-school activities or work or have responsibilities going until 6 or 9 at night when they can finally start on homework. With a combination of both biological and environmental factors, going to bed sooner is not always feasible for these teens. High schoolers continue to miss out on their needed rest. Students are not blind to the problem either. In 2021, Instagram began to pop up with “slumped” school pages. Students make Instagram accounts in the name of their schools, then encourage students to direct message them pictures of students caught falling asleep in class. Shawnee Mission East High school’s newspaper shows this page, along with



annotations from a student, Greyson Imm (Imm). Some are faked for comedy, some are real, but regardless, there are a lot of photos. Even if they were all fake, the fact that it is not surprising or questionable is the problem. It is accepted for teenagers to be always tired and cranky and to fall asleep in the middle of daily life. While perhaps often met with an eye roll, the fact of the matter is that most of those standard teen stereotypes are actually side effects of a serious issue: chronic sleep deprivation. Valerie M. Crabtree, Ph.D. is an Associate Member, the Department of Psychology and Chief of Psychosocial Services at St. Jude Children’s Research Hospital. In February 2019, she delivered a TEDx Talk about the teenage sleep deprivation epidemic. Crabtree brings different viewpoints to every part of the issue. Not only is she a medical

professional, but also a mom. She gives a fully-rounded perspective on why teen sleep is so important. Crabtree explains the teen circadian rhythm. Circadian rhythm is the cycle in which your body naturally produces melatonin and is ready to go to bed at night. “The Teenage circadian rhythm is later than it is in adults and young children. Teenagers are not biologically wired to go to bed before 11 or 12 at night, so waking a teen up at 6 is like waking an adult up at 3 or 4 in the morning”(Crabtree). Biology indicates that teens cannot do their best work at the time they are required to do so. Furthermore, school is supposed to prepare students for the real world; nine to five is generally known as the standard work hour, so why not have their schooling start at a similar time? By pushing students to attend school at unhealthy and draining hours, schools are setting their population up for failure.

If the problem is so widespread and irrefutable, why are simple steps not taken to start ending this epidemic? Many people argue for fear of less extracurricular participation. Schools and parents want their kids to be involved. In her talk, Crabtree references a school that has taken the initiative to change its times, and even with the late start, they saw an increase in extracurricular involvement, rather than a decrease. With more energy, students are more likely to want to stay after school and engage with their place of learning. Another reason some use to justify the unreasonable start times is how changing schools to a later start time would be a crazy jump. Change is hard, especially when it is something that everyone has grown up with and taught as the norm. According to the Centers for Disease Control (CDC), “42 states reported that most (75%-100%) public middle and high schools started before 8:30 a.m.” (“Schools Start Too Early”). Most districts would be the first in the area to change, and it would be strange for students of different schools to be on different schedules. This initiative could begin to bring everyone to a change, if one district makes the jump, others around it could copy and begin to

help their students. There are, of course, logistical concerns. If school were to start later, would the lost time have to be made up? If it did, would students not get out way too late? The proposal of a later start time is only an hour or so back. Most schools already end before three, so as long as schools end before four o'clock, the end time is not a drastic change. According to a study done by the *Clinical Medicine Insights: Circulatory, Respiratory and Pulmonary Medicine Journal*, "sleep duration of fewer than 7 hours on weekends or both weekdays and weekends was significantly associated with poorer school performance"(Ming, et al.). With early start times, school performance suffers. The change is hard; figuring out details is hard—but the consequences of keeping early school times are worse. Currently, in a standard school district, high school begins first anywhere from 7 to 8 am, then middle school less than an hour later, and elementary school last. Ideally, to fit The CDC and American Academy of Pediatrics recommendations, the schedules would reverse: high school starting around 9 a.m., middle school at 8:30, and elementary at around 8 am. Young children generally have more energy and have earlier circadian rhythms. This could also help if a high school student has to help their family get a younger sibling to school. With high school starting after the younger groups, there is more independence. Overall, yes, it would be a big step, but it would be a step forward in the right direction of innovation and growth.

Schools are supposed to prepare students for the real world and give them a chance to learn about themselves. The current standard of school start times makes this impossible. Adolescents have a later circadian rhythm and social pressures that hinder their ability to take enough time to sleep. Both biology and our world environment have led to a rising epidemic of chronic sleep deprivation in teenagers. This sleep deprivation prevents students from being able to make the most out of their education to reach their full potential. Schools have the opportunity

to save these students by delaying their early start times. Simply moving school start times to be after 8:30 a.m. would improve most aspects of a teen student's life. More reasonable start times lead to better attendance, mental health, motivation, test scores, and overall joy in students' lives. Delaying start times would lead to a fresh, whole world of growth.

WC 2007

Works Cited

Au, Rhoda, et al. "School Start Times for Adolescents." *Pediatrics*, vol. 134, no. 3, 2014, pp.

642–649., <https://doi.org/10.1542/peds.2014-1697>.

This statement is from the American Academy of Pediatrics, a well-respected medical organization in America. Specifically written by the Adolescent Sleep Working Group, Committee on Adolescence, and Council on School Health, these professionals are some of the highest in their field. This piece is written in response to findings on chronic adolescent sleep deprivation and is directed towards the public in an attempt to call attention and a change to the problem. The writing urges for later school start times and highlights the negative health effects of sleep loss.

The entry is formatted in a professional, scientific manner. It begins with all of the factors possibly contributing to the lack of teen sleep, then goes on to explain all of the detriments and serious consequences of teen sleep deprivation, even referring to the mass of teen sleep deprivation as an epidemic. The report is then brought to a solution, pointing out all the ways delayed school start times could benefit students and why. It finally concludes with a quick summary and call to action. This is an incredibly trustworthy source. The professionalism is high and known as one of the best sources out there. All of the authors are experts and most have PhDs.

The text itself brings more science to the topic. It brings in points about a teenager's natural brain chemicals and leaves very little up to interpretation. Pure facts are important for me to use and gain credibility in my defense.

How big a change would have to be made? Why hasn't it been done yet?

WC 261

Crabtree, Valerie. "Teen Sleep: What Is It Good For? Absolutely Everything." TED,

TEDxMemphis, February 2019,

https://www.ted.com/talks/valerie_crabtree_teen_sleep_what_is_it_good_for_absolutely_everything.

Valerie M. Crabtree, Ph.D. is an Associate Member, the Department of Psychology and Chief of Psychosocial Services at St. Jude Children's Research Hospital. She delivers this TED talk to address the rising epidemic of teen sleep deprivation. She seems to address majorly parents, but her message is open to all. In the speech, Crabtree urges schools to change their start times, and assists parents in suggesting ways to make their school systems abide. Teen sleep deprivation and school start times from both a parent and medical professional's perspective.

Valerie M. Crabtree's speech begins with her painting a picture for her audience. She describes a weary morning and exhausting routine. She then continues to discuss the impact sleep deprivation has on teenagers, and how the biology of a teenage brain doesn't allow them to get as much sleep as adults. She concludes by encouraging her parents in the audience to go to their school districts and tell individual stories to hopefully convince a change. Due to her reputation and language, she presents herself in a trustworthy manner.

This speech will help me balance my argument using pathos and logos. Crabtree explains the circadian rhythm well and makes it clear that school start times are not students' fault.

At least one Question

If all of the facts are there, what does it take to convince districts to make the change?

WC 229

Imm, Greyson. "Shawnee Mission East (SME) High School Instagram Page with Sleeping

Students, along with a Short Analysis of Its Harm/Benefits by SME Student Greyson

Imm." *The Harbinger*, The Harbinger Online 2022, 22 Dec. 2021,

<https://smeharbinger.net/holding-them-accountable-while-many-sme-parody-accounts-on-instagram-are-harmless-fun-many-more-gain-followers-and-likes-at-the-expense-of-students-comfort-and-privacy/>.

Greyson Imm is a student writer with Shawnee Mission East High school's school newspaper *The Harbinger*. He wrote this article for students in reference to the new Instagram pages popping up all over schools. His work is aimed toward students, but could easily be understood by adults and teachers. He is informing the student body about these Instagram pages, and starting a conversation on their harm/good.

The picture has a screenshot of the top of Shawnee Mission East High school's "slumped" page on the left, and on the right is Greyson Imm's annotation. This is from a school newspaper, so it is not based on science, but it does have an accurate account of the student's perspective.

This helps me inform my readers of what students think on the topic and one way they respond to the issue.

What is the statistic of real versus posed photos?

Killgore, William D.S. "Effects of sleep deprivation on cognition", Editor(s): Gerard A. Kerkhof, Hans P.A. van Dongen, *Progress in Brain Research*, Elsevier, Volume 185, 2010, Pages 105-129, ISSN 0079-6123, ISBN 9780444537027, <https://www.sciencedirect.com/science/article/abs/pii/B9780444537027000075?via%3Dhub>.

William Killgore works in the neuroimaging center of McLean Hospital and got his license from Harvard Medical School. He has made medical journals before with other sleep research. It is written to inform those in the medical field on the cognitive deficits aligned with lack of sleep. It highlights certain brain functions that become ineffective with a lack of rest.

In short, the entry goes over a lot of different brain functions that become compromised without sleep. It covers a lot of things, from attention to creativity. All of these detriments are relevant and bad for school students in particular. Killgore's medical and professional speech convinces the audience of his trustworthiness, along with his past publications and education/employment.

How it helps inform my paper

This helps my paper from a scientific standpoint. Cognitive brain functions are a physical measurement. These symptoms can be charted, instead of just relying on reports. This biological input increases argument on the idea of teens just needing to "try harder".

How are so many teenagers getting by with this physical drawback?

WC 177

Ming, Xue, et al. "Sleep Insufficiency, Sleep Health Problems and Performance in High School Students." *Clinical Medicine Insights: Circulatory, Respiratory and Pulmonary*

Medicine, Jan. 2011, <https://journals.sagepub.com/doi/full/10.4137/CCRPM.S7955>.

The *Circulatory, Respiratory and Pulmonary Medicine Journal* is a medical journal primarily focused on circulatory, respiratory, and pulmonary functions, the sleep deprivation article is in there because sleep deprivation can harm these bodily functions. Its writing seems to be more geared toward those studying the medical field, but doesn't use excessive jargon to which the public would be unable to understand. The entry is written in regards to teenage sleep deprivation and its harm to health. It outlines a study done on student sleep deprivation and explains the solution of later start times.

The article is, in short, a study report. It explains this author's medical research study. The report begins with an outline of the importance of sleep, describing the consequences of too little. It then describes how the questionnaire was formatted, how the subjects were found, and includes a short explanation of how the data was analyzed. It then goes through the results, including graphs. It describes sleep schedules, durations, and sleep health problems. It then concludes its analysis and discusses the data, along with how a delayed start time in schools would help. This source is a legitimate medical study and therefore has credibility and trustworthiness. Studies are facts, and people try very hard to keep them away from opinion.

This report gives me statistics to overview exact numbers in the sleep deprivation effect. In being a legitimate medical journal, my credibility goes up. Solid facts are important.

Surveys leave room for human error, how many of the participants could have been mistakenly relaying their information?

WC 259

Paruthi S, Brooks LJ, et al. “Recommended amount of sleep for pediatric populations: a

consensus statement of the American Academy of Sleep Medicine.” *J Clin Sleep Med*

2016;12(6):785–786. <https://aasm.org/resources/pdf/pediatricsleepdurationconsensus.pdf>

The *Journal of Clinical Sleep Medicine* wrote this consensus statement to clarify how much humans should be sleeping. It is intended for the general public. It is meant to give a clear outline in the population. It lists the group’s results of how much sleep seems to be ideal for each age group.

The consensus gives a very quick and brief reminder of the importance of sleep, particularly in adolescence. It then lists the sleep times for each age group and common consequences of not following the guidelines. It finishes with a background, future discussion outlines, and all acknowledgments and disclaimers. This widely-known source is trusted by the CDC. It is a group that provides guidelines with clarity.

It informs my paper by giving me, in basics, the facts. This is what has been recommended to the public. It is hard to deny such a rock-solid source.

Are we seeing downward trends in sleep deprivation after this release?

WC 160

Richter, Ruthann. "Among Teens, Sleep Deprivation an Epidemic." *Stanford Medicine News Center*, Stanford Medicine, 8 Oct. 2015,

<https://med.stanford.edu/news/all-news/2015/10/among-teens-sleep-deprivation-an-epidemic.html>.

Ruthann Richter is the director of media relations for Stanford Medical School's Office of Communication & Public Affairs. Richter posted this article in 2015, following the schedule of an overworked, sleep-deprived teen. Richter refers to the issue as an epidemic, highlighting the rising negative impacts of this chronic, widespread sleep deprivation. The article is written to call more attention to the issue, particularly from parents. Rising rates of anxiety, depression, and suicide are what Richter believes are all direct links to the sleep deprivation of teens. Using her voice as an influential member of the community, Richter validates and encourages the conversation on this huge issue plaguing teens.

The article follows the lifestyle of a 17-year-old high school student named Carolyn Walworth, bringing the audience to an exact example of the problem, and putting them in her shoes. The text continues to progress and mentions key points in understanding the sweeping issue. It goes over the basics of how teen sleep is different from an adult or child's, the pressure teens are put under to warrant them forgoing sleep, and how their mentors are not helping. Before the article is concluded, it goes over the breaking point, and how it can look or feel to hit the end of what an adolescent's body can take. Richter finally concludes with the measures already put into place and how more advanced steps can be taken. Consistently citing important influences and viewpoints, Richter leaves no room to blame laziness or individual people and instead goes over it as a widespread issue caused by many.

This article provides ethos and credibility to my paper that I cannot have on my own. As a teenager currently in high school, there will inevitably be a bias in my paper. Stanford is a well-known university, and its medical research is reputable. By having a Stanford article, my credibility already goes up. Richter is very careful in her wording, giving a good objective look into how serious of an issue my topic is.

Questions that I come up with after reading this article are, "What are some of the exact statistics in teenage sleep deprivation?" and "If this sleep deprivation is a large factor in so many of society's most recognized problems, why isn't more being done about it?"

“Schools Start Too Early.” CDC,

<https://www.cdc.gov/sleep/features/schools-start-too-early.html>.

The Centers for Disease Control and Prevention (CDC) has this page up for the public to reference healthy guidelines. It is meant for the general public and gives a starting ground for people to learn more. It gives a very brief description of what is recommended and gives plenty of sources to verify/research.

The CDC starts by explaining the current lack of sleep in teenagers and then explains the recommendations. It explains the impact of puberty, and how this can stunt adolescent sleep patterns. It finishes with how those who are not students can help the teens around them. It encourages a delayed start time and continues to give resources. The CDC is reputable, widely listened to source. During the COVID-19 pandemic, its guidelines were like laws. It includes a hefty amount of outside resources and does not leave any room for doubt or bias.

It informs me of more sources I could reference if necessary but also gives me logos and ethos with my readers. The CDC is like the law of human health, if this is a prominent recommendation on their website, it gives more push to be taken seriously.

Everyone listened to the CDC about COVID-19, why not this?

WC 203