The Impact of Sleep Deprivation on Mental Health in Minority Adolescents: Introduction

AP Research

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Sleep plays a major role in the mental health of teenagers, but minority adolescents face additional challenges on top of that which makes the situation even more complicated. Lack of sleep doesn't just cause tiredness, it increases the risk of depression, anxiety, and emotional difficulties. For teens that are part of racial minorities, these struggles are most of the time made worse by financial situations, cultural pressures, and limited access to healthcare. The Centers for Disease Control and Prevention (CDC) also shows the importance of this issue, stating that "mental health is essential to overall health, yet many adolescents from racial and ethnic minority backgrounds have limited access to mental health services" (CDC, 2024). This research paper explores how sleep deprivation, mental health challenges, and barriers to healthcare come together, trying to see how these factors create additional difficulties. The overall goal is to use this to create more inclusive and effective mental health policies for everyone. With this in mind, my research question is: How does sleep deprivation affect the mental health of racial minority adolescents, and what barriers do they face in accessing mental health services?

Literature Review

Research consistently shows that sleep deprivation has serious mental health effects and have been a major problems for teens. This shows its important influence on mental and emotional health. Multiple studies showed that not enough sleep leads to stress in teens, causing high levels of anxiety and depression. The National Institute of Mental Health (NIMH) reports that 17% of teens go through depression before adulthood, showing the need for early support to help teens better their mental health over time (NIMH, 2022). Similarly, the World Health Organization (WHO) pointed out a 25% rise in global anxiety and depression during the COVID-19 pandemic, which highlights how big of a problem these challenges have become (WHO, 2022). These statistics show how much and how wide mental health struggles can be among these teens, with sleep loss acting as the main reason for these challenges. Columbia Psychiatry (2022) reviewed studies on how sleep deprivation affects mental health and found that a lack of sleep can make anxiety and depression much worse, especially for teens already dealing with these issues. This perspective shows that sleep deprivation is not just feeling tired but also it is deeply connected to the overall mental health of adolescents. The Columbia Psychiatry review combined with findings from NIMH and WHO, shows that sleep deprivation is a major problem that can worsen challenges and vulnerabilities, specifically for racial minority teens who often struggle to access mental health help. More research also shows that sleep deprivation has an effect on teens emotions and had there overall mental health. Gibson and Turner (2021) from the University of Pennsylvania found that teens experienced increased feelings of anger,

sadness, and confusion in an experiment where they were asked to only have five hours of sleep per night. This shows how sleep loss affects emotional health. Similarly, Twenge and Campbell (2018) from San Diego State University conducted a cross-sectional study exploring how screen time influences mental health, adding on more to what is known about factors that affect teens emotional health. They found that teens who spent more than two hours a day on screens faced a major drop in mental health, also having higher levels of anxiety. Mary Carskadon (2011), a professor at Brown University and an expert on adolescent sleep explained how delayed sleep cycles, early school start times, and academic stress work together to create what she called "the perfect storm" for worse sleep deprivation. This lack of sleep has a serious impact on teens' mood and academic performance. These observations made in these studies show how sleep deprivation affects teens' emotions and behavior. This also shows how the risks can be even worse for these racial minority teens who often deal with extra problems on top, like limited access to healthcare and mental health support.

Although the mental health effects of sleep deprivation are well tracked, it's important to look at the physical issues that stop teens from getting the care they need. Minority teens often deal with even more specific challenges due to economic struggles and cultural factors. For example, the CDC (2024) highlights how income levels and cultural differences can make it harder for minority teens, especially those in underprivileged communities, to access mental health services. The Healthy People 2030 report points out that healthcare access is much harder for racial and ethnic minority groups, which leaves many teens without the mental health support they need. Ramos, Wheaton, and Johnson (2023) build on this by linking these barriers to worse mental health results,

showing that lack of access often increases the risk of serious mental health issues in minority adolescents. Together, these studies point to economic and cultural barriers as major obstacles, with the CDC and Healthy People 2030 focusing on healthcare access, while Ramos, Wheaton, and Johnson emphasize how these issues worsen overall health.

Building on the discussion of barriers to mental health care, it's equally important to look how socioeconomic and racial factors in sleep quality impact minority adolescents. Johnson et al. (2020) (a public health research team) conducted a meta-analysis showing that Black and Hispanic teens often sleep less and experience poorer sleep quality compared to their White peers. These inequalities are most of time tied to factors like overcrowded housing and unsafe neighborhoods, which contribute to stress and disturb sleep patterns. Keyes, Maslowsky, and Hamilton (2023), researchers from the University of Michigan who specialize in adolescent mental health, found that not enough sleep increases the risk of suicidal thoughts and behaviors in minority teens, especially among Black and Hispanic youth. Their study states that "minority adolescents face a greater risk of mental health challenges due to systemic inequalities," showing the need to address these problems and their bigger impact on mental health. Similarly, Jarrin, McGrath, and Quon (2014), researchers at the University of Ottawa, found that teens from lower socioeconomic backgrounds not only experience worse sleep quality but also face worsend mental health risks. Their work connects economic struggles to poor sleep and emotional stress, showing that status and financial situations mixes with these challenges. These studies show how socioeconomic and racial factors contribute to sleep problems, which then worsens the

mental health of minority adolescents. Johnson et al. and Jarrin et al. focus on the role of economic struggles and disadvantages, while Keyes et al. directly connect poor sleep to severe mental health risks. Together, they show the need for solutions that address both sleep and more general inequities affecting minority teens

This research paper sheds light on how sleep deprivation and limited access to mental health care comes together to impact the well-being of minority adolescents. By addressing both issues together, this research fills a major gap in understanding and shows the need for inclusive policies that look at both sleep health and access to mental health services. In summary, this research focuses on the connection between sleep deprivation, mental health challenges, and access to care for minority adolescents. By going into these connected issues, the goal is to create a base for more equal and spread out healthcare practices and specific mental health programs that better support the more unrepresented teens. The existing research provides strong evidence about the relationship between sleep and mental health, especially through quantitative data. Some studies also explore healthcare access and its challenges. However, many focus only on one issue—either sleep deprivation or access to care—without fully going over and explaining how they impact minority adolescents when combined. There is a gap in exploring how sleep deprivation and barriers to accessing mental health services together affect minority teens. Future research should aim to close this gap by studying how these challenges overlap and by testing solutions, such as community-based mental health programs and more inclusive and wide reaching policies. These efforts could help reduce healthcare differences based on groups and support better mental health help for minority adolescents facing all these problems.

Method :

Introduction to Study Methods:

While conducting this specific study, there have been multiple studies which mainly focused on understanding how sleep deprivation impacts the mental health of minority teens, combined with the additional challenges they face in accessing mental health services. The methods for this research were chosen to make sure they are reliable and replicable while addressing the specific needs of the study's population.

Data Collection:

Online Surveys First, the study uses an online survey as the main data collection tool. This decision makes sure it is anonymous and encourages honest answers, which are important when addressing sensitive topics like mental health. The survey design includes questions adapted from checked tools such as the PHQ-9 for depression and the GAD-7 for anxiety, ensuring the methods match and align with the specific standards and are safe, considering that a high schooler is conducting this study. These questions were paired with others that look into factors influencing access to healthcare, such as cost, bias, and the availability of resources. The surveys are shared online through social media platforms like Instagram and TikTok, as well as in collaboration with organizations like the National Alliance on Mental Illness (NAMI).

Participant Recruitment :

Participants include minority teens aged 14 to 18 who self-report experiencing sleep deprivation, defined as averaging fewer than 7 hours of sleep per night. Recruitment will be done through target ads(such as Instagram story questions and promoted posts encouraging teens to anonymously share their sleep habits and challenges), school

newspapers, and collaboration with local nonprofits, making sure there is a diverse sample. To ensure it follows ethical guidelines of the Belmont Report, participants under 18 were required to provide parental consent (from parental consent form). Lots of effort will be made to make sure it is anonymous, with no identifying information collected in the surveys.

Optional Follow-Up Interviews :

The optional follow-up interviews were structured to gather deeper qualitative options and information into participants' experiences with sleep deprivation and mental health challenges. Questions will include topics such as how sleep patterns influenced their daily routines and academic performance, and what are some mechanisms they use to manage stress. However, due to concerns raised about the potential harm in conducting such interviews, questions specifically asking participants about their experiences accessing mental health services, such as "Have you ever tried to seek help for mental health concerns? If yes, what was the process like for you?" and "What challenges have you faced in accessing mental health support?" were removed. This change makes sure the study follows ethical guidelines by removing the risks associated with discussing sensitive topics with a non-professional or medical expert.

Data Analysis: Quantitative and Qualitative Methods

The collected data is analyzed using both quantitative and qualitative methods. Quantitative survey data involves calculating z-scores to identify trends and correlations between the time of sleep, mental health results, and challenges to getting care (a z-score shows how far a data point is from the average, helping show *"unusual patterns")*.I used Pearson correlation analysis to test for the strength and type of

relationships between the variables sleep hours and cost barriers scores. I also did a p-value test (with $\alpha = 0.05$) to check if the relationships I observed were statistically significant. To analyze differences based on groups in responses between things like social classes, a chi-square test was used to see whether any differences were likely to be random or meaningful. After noticing a consistent pattern with the participants self-reported social class Idid a chi-square test to see if the differences in responses across the different groups were statistically significant. While this wasn't the original objective I was measuring, the test was done as social class has started to constantly appear as a major factor.

Qualitative answers from open-ended survey questions and interviews will be reviewed to identify common patterns and similarities. This idea involves grouping similar answers to clearly see and identify the main challenges and experiences shared by participants. Organizing the data this way makes sure that the findings are straightforward and show the participants' perspectives.

Addressing Biases and Limitations :

Several steps are taken to reduce potential biases and limitations. Survey questions were reviewed by a district teacher to make sure they are direct and there is no misunderstanding or confusion. Sampling bias will be addressed by partnering with organizations that work with many different diverse potential participants, such as NAMI Central Texas and Communities In Schools of Central Texas. While self-reported data can include biases, it is anonymous, so this reduces these risks. Conclusion :

In summary, the methods that were used in this study were specifically chosen to balance getting results and a better idea and ethically being responsible. By focusing on

online data collection and making sure all ethical guidelines were being followed, this research aims to provide valuable perspectives on the connection between sleep deprivation, mental health, and financial and economic-based barriers for accessing health resources for racial minority teens. Although limitations such as the reliance on self-reported data and sampling bias exist, these will be addressed to the best extent possible to make sure there is validity and reliability for the findings.

Product/ Findings :

While this research was originally intended to go into depth in how sleep deprivation affects the mental health racial minority adolescents, and the barriers they face when accessing care, an additional, important factor kept on recurring during analysis: socioeconomic status. Though not the main focus at the start, it became clear that a participant's economic background played a crucial role in both sleep patterns and access to mental health services. Instead of shifting away from the original goal, this new understanding helps add on in addition and helps go more into depth on the understanding of the challenges racial minority teens face, showing how sleep, stress, and access are characterized not just by race but also by financial situations. My research has shown numerous key patterns that indicate a deeper understanding of how sleep deprivation and barriers to mental health care insertect and how they are also affected by a new variable that influences results, socioeconomic status. Through using a mixed-methods study, including both qualitative responses and statistical analysis, the data has been able to identify repetitive trends within the sample group of 30 teens.

One of the strongest and most consistent patterns observed in the data, gave us a new understanding, that participants from lower-income backgrounds were significantly more likely to experience sleep deprivation. Among the 30 participants sampled, teens who identified as lower class reported getting only 4 to 5 hours of sleep per night on average. In comparison, middle-class participants averaged about 6 hours, and upper-class teens normally reported averaging 7 to 8 hours of sleep. While academic pressure was the most given reason for lack of sleep across all the groups, teens from lower-income households more commonly mentioned family or personal responsibilities as also limiting factors, indicating that economic pressure at home due to financial situation may contribute to increased responsibilities such as caretaking or part-time work.

These same participants also reported facing the most financial barriers to accessing mental health care. Most upper-class teens said that cost “never” or “rarely” got in the way of accessing care and none reported avoiding treatment for financial reasons. On the other hand, most teens from lower-income families selected “often” or “always” when asked how much cost was a barrier, with many admitting they had avoided care due to financial issues with being able to afford it. Middle-class participants had most mixed responses, with some indicated some degree of financial pressure while others did not.

The investigated results demonstrate a clear connection between mental health access and sleep loss and financial well-being. Teens from low-income households experience less sleep combined with limited care resources that results in worse emotional and psychological issues. The study followed the basic goal which was to which examined

sleep deprivation effects on minority adolescent mental health under the context of real-life financial challenges and limited economic status and increased responsibilities.

To understand and get a type of grasp of if there is a relationship between how much sleep someone gets and if cost affects their access to get medical care, we did a Pearson correlation test with the sample data being equal to or greater than 30. This test was chosen because sleep hours (a continuous variable) and reported cost barriers (a variable converted to a scale that can be measured from “never” to “always”) can be interpreted numerically. The correlation coefficient (r) was -0.52, which shows a moderately strong negative relationship, meaning it was inverse and that the less sleep a teen reported, the more likely they were to also have cost as a barrier to accessing healthcare. This means the two variables move in opposite directions. We also calculated a p-value of 0.034, which is below the statistically significance level of 0.05. This means the result is statistically significant, because the p-value is less than a standard significance level of 0.05, meaning the interpretation of the result was not just because of chance. In this case, the null hypothesis was assuming that there was no relationship between sleep deprivation and cost barriers to care. The alternate hypothesis was assuming there was a relationship between these factors. Since the p-value was so low, we rejected the null hypothesis and failed to reject the alternative hypothesis. We could safely conclude that there is most likely an association between

how much sleep teens get and if cost and financial situations act as barriers to them from accessing mental health care.

This result does not prove causation but does allow us to establish a correlation and adds significance to the argument that financial barriers and sleep problems are connected and can be measured. For future studies, more and precise methods and tests could be done to see if the meaning of the results were consistent throughout a variety of statistical tests and additional factors, such as stress or race could be evaluated to see how they might additionally influence findings.

In addition to generalizing we also looked to see if economic situations
may also influence the types of stress teens experience and not just the severity of it. The data collected shows that teens that were lower income were much more likely to state causes of stress branching from a variety of issues like helping take care of family members and financial and other pressure . On the other side, upper-class teens mostly reported academic pressures, the only main factor of causing stress. Even though all of the teens in the sample experienced stress, there appeared to be a correlation between their financial status and the severity and quantity of the various reasons for their stress. This matches up with studies evaluated in the literature review, which showed that more financial strain could lead to worse sleep quality, worsen emotional well being, and limit access to care.

However, it is important to address the limitations of this study. One major limitation was because this was done by a highschool student with limited resources, the research didn't have access to professional resources, funding, or a larger data collection tools or methods that an actual medical facility uses. In addition, due to the high level of analysis for each participant and a limitation of resources and time, my data collection was limited to 30 participants, and and the potential participant pool and people to complete the survey and interview was heavily based on and limited to schools and personal contacts, which could have introduced response bias. Also much of the sample's participants came form communities or organizations related with or close to the researcher, and this could have influenced how willing they were to respond or how they responded regardless of even if it was anonymous. Even though we reached out to many mental health organizations, only two responded and distributed the survey to their participants. This majorly cut down on the pool of responses and could have impacted the diversity of the sample. Also all participants were within the US, so we could not generalize the findings and results on an international level.

Another important limitation is that the survey did not define what qualified as "lower," "middle," or "upper" class. Participants self-reported their economic status without any income range brackets to guide them, or clarifiers, which introduces differences in meanings for the different classes and makes it based on perception of how each person identified their class. Because of this, comparisons of finings between classes may not be as exact as if a fixed amount interval or defining factor was set to categorize what class participants would fall into with a standard metric . Nonetheless,

despite these limitations, the findings still show meaningful patterns that can cause deeper research and help guide future research.

Discussion,Analysis and Evaluation :

The findings confirmed the original hypothesis, that sleep deprivation is linked to having worse mental health for minority teens, and that those same teens also face major barriers, specifically financial ones when accessing care. It also confirmed that these teens are affected worse by sleep deprivation. However, the factor that more strongly influenced responses than originally thought was the role of economic status, and connected multiple different barriers. Sleep deprivation and financial related barriers to accessing healthcare are already two major separate issues when dealing with each alone. But the data shows that unlike other levels of income, for lower income teens, these issues both exist and mix with each other, making barriers even worse .The statistical correlation between limited sleep and access to healthcare financially isn't just statistics, it shows a deeper and more unaddressed and unaware problem. With how strongly these factors are connected and backed up by evidence with a low p-value, it shows that the results we are seeing were not random and part of a larger pattern. These findings have value with real-world implications and meaning. For example, teens are too overwhelmed by financial issues or family responsibilities, and can't get enough needed rest or afford care, they’re at double the risk, which we saw was not hypothesized. This also came out to be different from their other peers from higher income brackets. This connection becomes a type of warning for not only schools and families, but for policies that fail to address how economic struggles combine with mental health struggles.

The results have similar conclusions to other similar studies done. For example, the study by Jarrin, McGrath, and Quon showed that teens from lower economic standings had to deal with both reduced sleep and worsened emotional health, mostly due to financial issues. The findings support and expand this claim. Participants from lower-income households in the sample most of the time reported sleeping 4–5 hours per night and also named cost as a consistent barrier to accessing mental health services. What the data adds to what is already known, is the idea that constantly appears throughout with these two issues, sleep and access, and these are not just damaging alone but might be connected, specifically for lower-class teens. This supports the Columbia Psychiatry review which stated that sleep deprivation worsens anxiety and depression,specifically also among those who already face issues relating to these factors.

Additionally, the findings backup and add on to what Johnson et al. (2020) observed in their meta-analysis of racial and ethnic sleep related differences. They noted that teens in Black and Hispanic communities often face outside and additional stress causing factors, like unsafe neighborhoods or overcrowded homes which reduce sleep quality. In the study, teens from those same economic groups not only reported shorter sleep but also listed personal responsibilities like taking care of family or financial concerns as reasons for it. This shows how after adjusting the original hypothesis and organizing the results, the findings are not outliers or seen as extreme but instead add on another layer with additional information to official similar research by correlating sleep deprivation directly with financial and economic limitations to accessing mental health care.

Overall, the results not just backed up the hypothesis on sleep deprivation and access to care but also gave us a new layer of understanding about the deep connection between economic status, sleep patterns and amount, and mental health access among minority and low income teens.

Conclusion and Future Directions :

The results and findings show a relationship between financial inequality and the sleep patterns of teenagers and the access to health care services. Due to the p-value and correlation tests we conducted on the data we have gotten evidence to provide us greater insight on which variables influence each other and together create more obstacles. We also enable the measurement of how strongly these factors are related. Due to the p-value and correlation tests we conducted on the data we have gotten evidence to provide us greater information on which variables influence each other and together create more obstacles. We were also able to measure how strongly these factors are related. These findings can help the healthcare field, schools and mental health organisations to make sure that there will be more accessible mental health care for everyone and specifically for racial minority teens from lower income families too, who face more challenges on top. Future studies could also expand and build on the findings by making applicable conclusions even more precise by looking into how other factors like race or culture could influence the results.

To summarize , this study not only supports previous research on sleep deprivation and access to care but also introduces a new understanding on top: the strong and complex connection between economic and financial status, sleep patterns, and mental health

access among racial minority teens. While the original hypothesis focused on the impact of sleep deprivation and barriers to care alone, the data showed a more complex and repeating pattern. In the pattern of data it was constantly clearly seen that financial struggles worsen both. This backs the need for more future research and policies to be made to not just account for each variable alone but the effect of these combined variables which multiplies the risks and worsens the consequences. Addressing just one of these issues independently without factoring the other will not work or make a significant difference. For schools and healthcare systems, this research can bee seen as a type of action to get support for teens on different levels and address their financial and psychological needs.

The research question asked, How does sleep deprivation affect the mental health of minority adolescents, and what barriers do they face in accessing mental health services? Based on the results,we can confidently say that financial barriers, which are closely related with economic standing, represents the main and central challenge to care. Minority teens who already may have a higher risk for mental health struggles due to these economic and financial constraints, may have to deal with double the effects when lack of sleep and lack of access to care come together. These teens are not only losing rest but also stuck in a cycle of ongoing combinations of challenges making it difficult for them to receive help.

Reflecting on the inquiry process, one of the most important successes was selecting the right method, a mixed-methods approach. This choice lets us not only identify trends

in the qualitative data from surveys but also to help intercept and gain value from quantitative numeric responses. It helped create a more overall rounded understanding of the issues minority teens face when it comes to trying to access mental health and sleep. A major surprise during the process was an unaccounted for recurring pattern that showed socioeconomic class to be a main variable. Even though it was not the original focus, the pattern was so consistent across and influenced differences between responses, causing different income class people to have different struggles and became impossible not to acknowledge. Adjusting to this shift mid-research showed the flexibility of the method and ultimately led to more accurate findings. By directly following the data and being able to analyze trends and patterns, the research became more impactful with more implications than originally predicted, causing us to look at sleep deprivation and access to care holistically and not just for racial minority adolescents. We then went through and found differences between the classes and this helped make the findings more valuable, accounting for more factors. One limitation to how research, though, was the size and diversity of the sample. While we gathered strong evidence from 30 participants, a larger and more equally distributed locationaly varied sample, having an equal amount form each location on a national scale, would be able to give us more generalizability and allow for deeper analysis on how location also influences results. Also it should be considered these findings and experiments were conducted by a highschooler and not a trained professional. Additionally, not defining clearly in numeric ranges of income for different classes in the survey limited how precise the connections were between the classes.Participants self-reported their social class without specific ranges, and this may have led to differences in how lower,

middle, or upper class were interpreted leaving it up to perception from person to person and could have a changing definition. Future researchers account for this by clearly and directly explaining each economic class with defined ranges to make sure there is more accurate data.

Going forward, future steps could include expanding this research to see how different factors like racial, cultural, geographic could change the findings and affect the struggle or experiences , and also look into solutions like more school-based counseling to help reduce stress or affordable therapy programs. Longitudinal studies could track how over time these patterns change, specifically for unpredictable and lower income communities. It is also important for future studies to develop more specific standardized metrics to define economic class so that patterns can be seen more precisely.

The implications of this research go beyond just an academic paper. These findings can help educators, future policies that are made, and healthcare workers tasked with having specific methods to get in between an element or better those negative effects. These findings can also help people with designing mental and economic support systems, specifically in schools and communities with lower income teens so that these systems are more accessible for support . The evidence supports the urgent call to

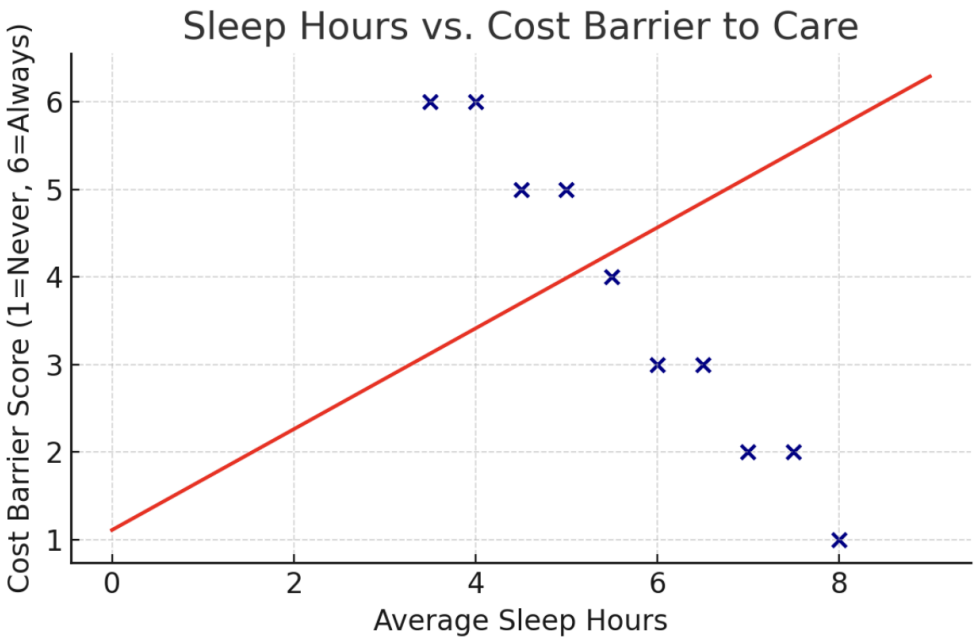
action to have different types and levels of support methods that are not just black or white and address the combination of struggles that teens' experiences.

In conclusion, this research confirms that racial minority adolescents struggling with sleep deprivation most of the time face economic barriers getting mental health care, and that these challenges they face are not individual but connected. It is important to recognize this connection to make effective mental health strategies that are not only effective scientifically and psychologically but also realistic and accessible economically.

Tables :

Class	Sleep	Access	Stress
Lower	4–5h	Limited	Caregiving, jobs
Middle	~6h	Mixed	Mixed
Upper	7–8h	Full	Academic only

This table makes it easy to see how class influences experience. Lower-class students sleep less, face more limited access, and juggle work. Middle-class responses were mixed. Upper-class teens had more sleep, more access, and mostly academic stress. The table shows how class differences show up constantly and have real and dire effects.



The correlation (r = -0.52, p = 0.034) showed that less sleep is correlated to more cost barriers, backing what teens shared with statistical and measurable evidence.

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