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Causes of sleep deprivation and its effect on performance of students and their mental health

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Daytime tiredness, unpredictable sleep schedules and lack of sleep are exceptionally predominant among school and college understudies. The outcomes of lack of sleep and daytime sluggishness are particularly risky to under grads and may end in lower grades, expanded danger of terrible academic performance, traded off learning, mood swings, and expanded danger of liquor and drugs. This paper surveys this situation of lack of sleep among college understudies, the contributing factors that bring about lack of sleep, and in this manner the significance of sleep for better learning and memory. This paper proposes that tending to sleep issues, which aren't frequently considered as a hazard factor for depression and academic disappointment, ought to be thought about.

Keywords: sleep deprivation, mental health, performance, academic grades

Lack of sleep is one of the most widely recognized issues among school and college students who live in a domain that promotes decreased dozing hours, because of the weight of academic examinations and social interests. The school or college experience is of incredible incentive in furnishing youthful grown-ups with a situation wherein they can accomplish the abilities, information, and opportunity to diagram their own way, become utilized, and add to the general public. Be that as it may, this experience comes at significant expenses given rising education loans and high fees, and along these lines, it is indispensable that the school years be as productive as could reasonably be expected. An expected snag to expand accomplishment in school is the high nearness of daytime drowsiness, lack of sleep, and no proper timetable for sleep. Lack of sleep and tiredness are brought about by several reasons and have a ton of negative outcomes. A few causes behind poor sleep quality are expanded caffeine and liquor intake, energizers, and technology, which keep students from accomplishing adequate quality rest. Sleep is named as either acute sleep deprivation or chronic sleep deprivation. Sleepiness can be an apparent result of lack of sleep, yet drowsiness is brought about by different components, for the most part sleep disorders. To comprehend the impact of sleepiness and lack of sleep, legitimate information on normal sleep and its effect on learning, memory, and health are important. Poor rest quality has a significant job in expanding the danger of psychological wellness in school and college understudies. Similarly, significant are expected intercessions, as these offer an opportunity to improve academic results and the overall well-being. This research papers audits the presence of drowsiness and sleep deprivation among school and college students, the effect of sleep on memory, a few factors for lack of sleep, outcomes with an emphasis on those especially pertinent to under grads, and accessible steps to improve sleep among understudies.

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Review of literature

Hershner et al. (2014) discovered central point influencing or causing lack of sleep among students and its outcomes. Authors have alluded to different secondary information sources including surveys and overviews taken for similar research. They found that half of students revealed daytime sleepiness and 70% got lacking sleep. Larger part of the understudies experienced chronic lack of sleep where one gets a few but not sufficient long periods of rest. They have distinguished liquor, caffeinated drinks, caffeine, energizers, technology and rest issue as significant reasons for an insufficient sleep hygiene.

40% of the students, Male and female announced hitting the bottle hard (4-5 drinks in succession). Liquor abbreviates rest idleness. An examination uncovered that the impact of caffeine goes on for 5.5 to 7.5 hours, so regardless of whether it is devoured during the evening hours, it can at present influence sleep around evening time. Caffeine builds carefulness, readiness and diminishes sleepiness. 67% of students intake caffeinated beverages to fight lacking sleep with caffeine as its fundamental constituent. Students use energizers to "remain awake to study". The utilization of stimulants has been related with expanded utilization of liquor, cocaine and marijuana. 67% of the understudies utilized electronic gadgets before hitting

the hay which is related with less serene sleep, higher Epworth sleepiness scale and drowsy driving. Sleep disorders assume a job in this. As indicated by a survey 27% of students are in danger for at least one sleep disorder. These incorporate obstructive rest apnea, restless legs issue and hypersomnia.

The result of sleep mentioned are impact on GPA, driving, state of mind impacts and that's only the tip of the iceberg. Students who got more sleep (over 9 hours) had higher GPA than the ones getting less sleep (under 6 hours). They were 3.24 versus 2.74 respectively. In a 2011 Sleep in America survey, 66% of youthful grown-ups and understudies announced sleepy driving. A school in Utah detailed 86 student demises in motor vehicle mishaps, in 44%-77% of the cases, sleepiness was seen as the reason. Depression and lack of sleep are interrelated. Depression is common during the school years. Irregular sleep plan has been related with more noteworthy depression symptoms among the understudies. All in all, inadequate sleep hygiene is common since students frequently utilize electronic gadgets and substances, paying little heed to how it influences their sleep quality and quantity. Sleep deprivation can likewise disable scholastic performance, mood regulation and driving safety. Examination of new methodologies into advancement of good sleep and sleep habits is vital in improving public health life, particularly in youthful adults and undergrads.

Lowry et al. (2010) inspected the connection between grade point average (GPA) and sleep, as far as both amount and quality. Studies were taken with 103 understudies to evaluate the degree of lack of sleep and the nature of university sleeping behaviors. Six factors were examined: rest quality, scholastic achievement and four unique viewpoints to amount of sleep. The viewpoints included were number of evenings went through with under five hours of rest during the previous week, just as during a normal week, number of long stretches of sleep got in a normal night and number of "all-nighter's" the understudies had pulled in the most recent year.

The GPA was correlated with the other five factors, which gave the accompanying outcomes. The average measure of sleep every night was seen as essentially connected with student's GPA. The understudies who dozed for additional hours on a normal night would in general get somewhat better evaluations over others. Likewise, the average number of days out of each week that understudies got under five hours of rest was seen as adversely connected with GPA. No relationship was found between understudies' GPA and number of dusk 'til dawn affairs understudies had encountered.

Gurjeet et al. (2017) have estimated sleep hygiene, sleep quality and extreme daytime sleepiness among 1215 Indian undergrads of different streams like BA, BCom, Bsc, BTech, BDS, and MBBS. A cross sectional examination had been directed. The device used to gauge sleep hygiene was Sleep Hygiene Index Scale (SHI) which depends on recurrence. Pittsburg Sleep Quality Index (PSQI) and Epworth Sleep Scale (EPS) were rehearsed in type of self-regulated questionnaire for a month. They utilized different measurable apparatuses like frequency dispersion, basic linear regression means and standard deviation and presumed that sleep hygiene is noteworthy factor that influences the rest of understudies according to information which is 77 % of all population had poor sleep hygiene. The fundamental purposes behind poor sleep health are emotional and also academic pressure, stress. Further they recommend to colleges to make a move against poor sleep hygiene as it might bring about medical problems in later course of life.

Singh et al. (2009) featured the commonness of disturbed sleep pattern as a noteworthy reason for poor academic performance and state of mind unsettling influences in students. They analysed the sleep design and corresponded lack of sleep with rate of tension, despondency, daytime drowsiness and performance. For this, a cross sectional study was directed among 100 clinical understudies old enough, using an approved questionnaire. Performance was determined on their general evaluations during the scholastic session.

Enormous number of understudies were sporadic in their sleep habits and their sleep patterns were extensively different on working days and other days. The sleep debt aggregated during the week frequently prompts prolonged sleep periods making extreme day inconsistencies of sleep designs. It was then discovered that time to bed is a superior determinant of performance than the quantity of long stretches of sleep. Those resting early showed lower nervousness and furthermore performed reliably well in scholastics. They could likewise build up that students sleeping all the more longer hours would have better performance, a positive relationship. A negative connection of tension, sadness with total hours of sleep and performance. Gender distinction were assessed indicating female students clung to a much ordinary schedule and performed better. An examination between the hostellers and day scholars demonstrated that most of hostellers had poor sleeping behavior which included dozing later than 12 AM and they didn't follow any regular rest plan. This influenced their academics and they had fundamentally lower performers than the day scholars.

The paper presumes that those following regular timetable, sleeping early and rising promptly toward the beginning of the day have better scholastic result and lower levels of uneasiness and tension.

Brown et al. (2002) identified the major factors affecting sleep hygiene and sleep quality among university students. Authors have referred to various secondary data sources and used instruments like the PSQI (Pittsburgh Sleep Quality Index), SHAPS (Sleep Hygiene awareness & practice scale). They found out that the sleep duration decreased from 7.5 hours per night to 6.5 hours per night. They found out that only 11% of university students met the criteria for good sleep quality.

Bad quality sleep could lead to psychosocial distress like depression, anxiety, reduced physical health and increased use of drugs and alcohol. It was noted that the students were unaware of how sleep deprivation influenced their cognitive functioning. Waking up at the same time every day was key element in sleep quality instructions. Common strategies used by students to counter their sleep variations included drinking coffee to improve alertness, power naps at unusual time, drinking alcohol.

Participants were from a mid- sized university located in South Eastern USA belonging to different races which included 86% whites, 11% African Americans and 3% Hispanics. They used Cronbach's coefficient to examine each section of SHAPS's internal reliability. They also used Pearson's product moment correlation to determine test- retest reliability of each section.

They finally concluded that knowing about proper habits didn't influence sleep quality. Implementing them was a major factor influencing sleep quality.

Hypotheses of the study

We conducted this research to test the following hypotheses:

- *H1:* Average Hours of sleep affect the CGPA of students
- *H2:* Main Cause of sleep deprivation college timings
- *H3:* Main Cause of sleep deprivation demography
- *H4:* Main Cause of sleep deprivation social media and streaming apps
- *H5:* Main Cause of sleep deprivation social life
- *H6:* Main Cause of sleep deprivation education pressure
- *H7:* Average Hours of sleep affect mental health

Objectives of the study

The focus of this research is to understand cause and effect of sleep deprivation on student performance and their mental health.

- To understand reasons of sleep deprivation in students.
- To measure the impact of sleep deprivation on student's performance.
- To measure the impact of sleep deprivation on student's mental health.

Method

Participants

Non probability convenient sampling and snowball techniques is been used. The Questionnaire was sent to the groups and friends. Also, the Questionnaire was also filled by the acquaintances of the friends. Connections of friends and group member were also used to get the Questionnaire filled.

Sample of 183 respondents was collected. 57.6% of our respondents were female while the remaining 42.4% were male. 81% of our respondents were from the age range of 19-21 years, 12.5% were from the age range 16-18 years and the rest were from the age range of 22-25 years. Sample consisted of degree college students as well as SYJC students studying in Mumbai.

Research design

Causal or Diagnostic Research Design was undertaken for research purpose as we try to identify and analyze the cause and effect of sleep deprivation on sleep and mental wellness.

Instrument

Survey Method: A questionnaire containing around 19 questions was formulated for sample analysis and was further circulated online to the college students. We interpreted the secondary research papers and accordingly formed our questionnaire. Some of the questions we asked our respondents were about their age, stream of studies, average number of college hours, average hours of sleep and their sleep time. We have used a linear scale and multiple-choice grids to collect the data.

Procedure

Primary data was collected through online questionnaire which was taken among the degree college students of varied field studying in Mumbai which were our main targeted research representatives because we feel that these are the people most effected with sleep deprivation.

Secondary data was collected through research paper in this field.

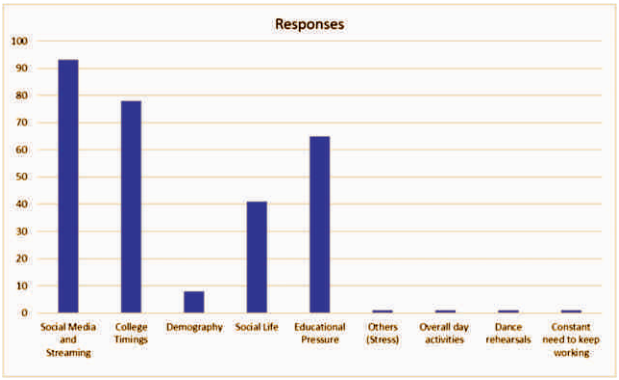
Secondary data was mainly used to design questionnaire and get idea about findings in this field.

Statistical analysis

The research was undertaken to study the impact of sleep deprivation on students' performance and mental health. Also, the reasons of sleep deprivation were found out. Survey from 183 students showed the following results:

Graph 1

Causes for sleep deprivation in students



The graph shows that major reason for sleep deprivation is Social Media and Streaming Apps, followed by the college timings. Also, educational pressure and social life contribute to reasons for sleep deprivation.

From the data obtained we also infer that with increase in year, i.e. with increase in academic year of college, sleep deprivation in the students decrease. Therefore, meaning a negative correlation.

The start time of college and sleep deprivation in students has a negative correlation of -0.1363421. Therefore, we can say that later the start time of college, lesser is sleep deprivation in students.

While studying the usual sleeping time of the sample, we get to know that there is a negative correlation (-0.015655331) between them. Thus, later the sleeping time, more is the student sleep deprived.

The correlation between sleep deprivation and student performance is -0.0353, this means there is a negligible correlation between them.

Results

Table 1

Effect of sleep deprivation on mental health of students

	Do you feel that you sleep less than required?	Symptoms
Do you feel that you sleep less than required?	1	
[Anxiety]	0.096198017	1
[Irritable Nature]	0.14855163	1
[Lack of concentration]	0.020446446	1
[Unreasonable Sadness]	0.070073053	1

We see that all the symptoms of mental illness (the ones mentioned in our survey) have a positive correlation with sleep deprivation. This shows that if people are facing any of those symptoms, i.e., experiencing mental illness, are sleep deprived.

H1: Average Hours of sleep affect the CGPA of students

Table 2

Average hours of seep and academic performance

Average Hours of sleep during a work day	Number of people	Average CGPA
Less than 4	1	0
2.614364912		
4-6 hours	91	3.059742755
6-8 hours	73	3.26242005
More than 8 hours	09	3.046421053

So, from the above data we can conclude that the average hours of sleep do affect the academic performance of students. According to various sources, the ideal amount of sleep for an adult is 7-9 hours (Sleepfoundation.org). Here, we can see that the CGPA of students goes up as the average hours of sleep increases, till 6-8 hours of sleep after which the CGPA takes a drop. This is caused due to oversleeping, which results in students being low on energy, experiencing anxiety and depression (healthline.com).

H2: Main Cause of sleep deprivation college timings

Out of the 183 responses received, 78 said that college timings contributed towards their reason for sleep deprivation. However, there is no correlation between college timing and the average sleep hours in a working day. Therefore, we can conclude this hypothesis stands null.

Table 3

Main cause of sleep deprivation demography

	Start Time of college	Average Sleep hours on a working day
Start Time of college	1	
Average Sleep hours on a working day	-0.006657093	1

H3: Main Cause of sleep deprivation demography

Out of the 183 responses received, only 8 said that demography contributed towards their reason for sleep deprivation. This makes it only 4.37%. Therefore, we can conclude that this hypothesis does not hold true.

H4: Main Cause of sleep deprivation social media and streaming apps

93 respondents said that social media and streaming apps are their cause of sleep deprivation. Social Media and is tied to depression and stress- two of the largest contributors to insomnia (Tuck.com). The sample shows that approximately 50% believe that social media and streaming apps contribute to their cause of sleep deprivation. Therefore, this hypothesis holds true.

Table 4

Main Cause of sleep deprivation social media and streamingapps

	Average Sleep hours on a working day	Social Life
Average Sleep hours on a working day	1	
Social Life	-0.04175478	1

H5: Main Cause of sleep deprivation social life

Out of 183 respondents, 41 said that their social life contributed towards their reason for sleep deprivation. Also, the correlation between the average hours of sleep and respondents thinking that social life affects their sleep is -0.04175478, which proves that social life of respondents is a major cause of sleep deprivation.

H6: Main Cause of sleep deprivation education pressure

Table 5

Main cause of sleep deprivation social life

	Average Sleep hours on a working day	Educational Pressure
Average Sleep hours on a working day	1	
Educational Pressure	-0.148568625	1

Out of 183 respondents, 65 said that educational pressure contributed towards their reason for sleep deprivation. Also, the correlation between the average hours of sleep and respondents thinking that educational pressure affects their sleep is -0.148568625, which proves that educational pressure on respondents is a significant cause of sleep deprivation.

H7: Average hours of sleep affecting mental health

Table 6

Anxiety

	ANXIETY				
Average sleep	Always	Frequent	Sometimes	Occasionally	Never
More than 8	0	2	3	2	2
6-8	3	23	21	12	14
4-6	5	23	30	21	12
Less than 4	5	2	1	1	1

From the above data we can conclude that the average hours of sleep do affect mental health (Anxiety). The amount of sleep required by an adult is 7-9 hours (Sleepfoundation.org). Thus, people who sleep more than 8 hours experience anxiety less than the people who sleep 6-8 hours. The respondents experiencing it the most are the ones who sleep less than 6 hours.

Table 7

Irritable Nature

	IRRITABLE NATURE				
Average sleep	Always	Frequent	Sometimes	Occasionally	Never
More than 8	0	0	5	4	0
6-8	5	24	30	9	5
4-6	11	27	38	11	4
Less than 4	3	5	1	1	0

Table 8

Lack of concentration

	LACK OF CONCENTRATION				
Average sleep	Always	Frequent	Sometimes	Occasionally	Never
More than 8	0	2	7	0	0
6-8	9	21	28	12	3
4-6	15	35	27	9	5
Less than 4	3	4	1	2	0

From the above data we can conclude that the average hours of sleep do affect mental health (Irritable Nature). The amount of sleep required by an adult is 7-9 hours (Sleepfoundation.org). Thus, people who sleep more than 8 hours experience anxiety less than the people who sleep 6-8 hours. The respondents experiencing it the most are the ones who sleep less than 6 hours.

sleep Do affect mental health (Lack of concentration). The amount of sleep required by an adult is 7-9 hours (Sleepfoundation.org). Thus, people who sleep more than 8 hours experience anxiety less than the people who sleep 6-8 hours. The respondents experiencing it the most are the ones who sleep less than 6 hours.

Table 9

Unreasonable sadness

UNREASONABLE SADNESS					
Average sleep	Always	Frequent	Sometimes	Occasionally	Never
More than 8	0	0	4	4	1
6-8	10	12	20	19	12
4-6	15	32	16	22	6
Less than 4	5	2	2	0	1

From the above data we can conclude that the average hours of sleep do affect mental health (Unreasonable sadness). The amount of sleep required by an adult is 7-9 hours (Sleepfoundation.org). Thus, people who sleep more than 8 hours experience anxiety less than the people who sleep 6-8 hours. The respondents experiencing it the most are the ones who sleep less than 6 hours.

Discussion

The 1st research objective which was to understand the main reasons for causes of sleep deprivation among college students. From the primary data collected, we find hypothesis that 2 (main cause of sleep deprivation: college timings) and 3 (main cause of sleep deprivation: demography) do not hold true and thus can be disqualified as causes of sleep deprivation. The remaining hypothesis which are 4 (main cause of sleep deprivation: social media & streaming apps), 5 (main cause of sleep deprivation: social life) and 6 (main cause of sleep deprivation: education pressure) from which we can come to a conclusion that the main reasons for sleep deprivation are educational pressure, social media and streaming applications and social life. Supporting studies Levenson (2016) found that in models that adjusted for all socio-demographic covariates, participants with higher social media use volume and frequency had significantly greater odds of having sleep disturbance. Simon and Walker (2018) found that sleep-deprived people felt more lonely and less social around other people. Results from Bernert (2007) also revealed that negative family life events, together with academic stress, predicted the highest levels of insomnia, thus holding the hypothesis true.

The 2nd research objective was to measure the impact of sleep deprivation on the students' performance. Hypothesis 1 (Average Hours of sleep affect the CGPA of students) holds true. Supporting studies like Hershner et al. (2014) have identified consequences of sleep deprivation as effect on GPA, driving, mood effects. Students who obtained more sleep (more than 9 hours) had higher GPA than the ones getting less sleep (less than 6 hours). They were 3.24 vs 2.74 respectively. Thus, confirming that the amount of sleep received by a student is in direct correlation with their academic performance.

The 3rd research objective was to measure the impact of sleep deprivation on a student's mental health. Hypothesis 7 (Average Hours of sleep affect mental health) describes various factors which affect one's mental health which are unreasonable sadness, lack of concentration, irritable nature, anxiety. Supporting studies show that sleep deprivation is positively correlated with anxiety and irritability (Babson, Trainor, Feldner, & Blumenthal, 2010). Alhola and Polo-Kantola (2007) found that both total and partial sleep deprivation induce adverse changes in cognitive performance. Benca (1997) found that mood disorders are found in one-third to one-half of patients with chronic sleep problems. Thus, the hypothesis stands true and confirming that sleep deprivation affects and has a direct correlation with the student's mental health.

Conclusion

During the research, it was witnessed that there exists a positive relation between sleeping hours and academic grades as well as between sleep deprivation and mental health. To put it in simple terms our performance and mental health are directly affected by our sleep. The primary reason for sleep deprivation came out to be excessive use of social media and streaming services. This excessive use of social media takes a double toll on our mental health firstly by depriving human body the quality and adequate sleep and secondly by putting the emotions of jealousy and self-judging emotions. So, there should be restrictive and careful use of social media to get the desired mental peace, also students should understand excessive educational pressure won't help them cope with their studies but discipline would. A change in habit today will lead to a change in lifestyle tomorrow.

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