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Relationship Between Sleep Deprivation and Risk of Accident Among Students

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Introduction	Good sleep is crucial for physical health, cognitive function, academic performance, and psychological well-being. Students often lack sleep due to academic work, stress, electronic device use, and lifestyle factors, increasing vulnerability to injuries and accidents.
Objective	To examine the connection between sleep deprivation and the likelihood of accidents among students, including analysis of sleep duration, quality, fatigue, drowsiness, concentration, causes of deprivation, and accident types.
Methods	A cross-sectional descriptive survey using an online questionnaire covering sleep hours, quality, fatigue, concentration difficulty, electronic device use before bed, and accident history. Demographic data (age, education level) were also collected.
Results	Many students failed to get the recommended 7–8 hours of sleep daily. Fatigue, poor sleep quality, drowsiness, and concentration difficulties were common. Academic schedules, stress, and electronic device use were main contributors. Many participants reported accidents following sleep deprivation.
Conclusion	Sleep deprivation among students leads to increased tiredness, drowsiness, reduced concentration, and accidents. School-related pressure, stress, and excessive gadget use cause insufficient sleep. Awareness of proper sleep benefits students' health, well-being, and academic success.

Keywords: *Sleep deprivation, students, accidents, fatigue, sleep quality, drowsiness*

1. Introduction

Sleep is a basic physiological function without which the body and mind of a person cannot operate properly. The function of sleep is not simply to rest but is rather a biological process that helps in the development of the brain, the regeneration of tissues, hormone production, and the functioning of the immune system. Sleep is important because it is necessary for proper cognitive functions such as concentration, retention of memory, learning, and decision-making. For students, who indulge in intellectual and academic activities on a constant basis, enough sleep is vital.

Sleep deprivation is characterized as a state whereby an individual fails to get adequate amounts of rest needed for optimal bodily functions. There are two types of sleep deprivation. One type is caused by acute lack of sleep and referred to as acute sleep deprivation. The other type involves a prolonged period of poor sleep, known as chronic sleep deprivation. It has been demonstrated that sleep deprivation causes adverse effects on different bodily systems by causing diminished alertness, impaired

concentration skills, slower response times, and poor problem-solving capacity.

Sleep deprivation is now a major problem among students across the globe. High academic pressure, competition, erratic class timings, and the need to perform at a high level make students opt to deprive themselves of sleep to gain extra time for studying. Moreover, the excessive use of electronic devices such as smartphones, laptops, and social networking sites adds up to late nights and poor quality of sleep. It is also common to observe that many students have an erratic sleep pattern especially during exams.

Consequences for students due to sleep problems are not limited to problems in their education. Poor sleep is linked to increased stress levels, lower motivation, and dysfunctional relations with other people. From a physiological point of view, lack of proper sleep makes the body more vulnerable to various diseases and metabolic disorders. It also increases the chances of accidents related to commuting and working in laboratories/clinics.

Considering all these extensive repercussions, it becomes important to know the extent to which sleep deprivation affects the students along with its causes and effects. Identification of such factors will enable the formation of preventive measures and healthy sleeping habits. This, in turn, will lead to improved academic and psychological performance of the students.

2. Materials and Methods

Study Design and Setting

A descriptive cross-sectional study design was employed in this study involving participants comprising students at various educational levels including those at secondary, university, and postgraduate levels. Data collection was performed using an online questionnaire administered between April and May 2026. This study was designed to determine the relationship between sleep deprivation and accidents.

Study Population and Sample

The study population comprised students at the high school, undergraduate, and postgraduate levels who took part in the survey on a voluntary basis. The study adopted a convenient sampling approach where participants were chosen based on an online questionnaire. Various age groups and gender categories of students were represented in the study sample. The total number of respondents was 100.

Inclusion Criteria:

- Students aged 18 years and above who voluntarily participated.

Exclusion Criteria:

- Incomplete responses and participants unwilling to provide consent.

Research Instrument

The data collection was done through a well-structured online questionnaire administered to the participants. The questions were aimed at assessing the respondents' sleeping habits as well as their vulnerability to accidents. This included the number of hours they slept, the quality of their sleep, fatigue levels, drowsiness, inability to concentrate, use of technological devices just before sleep, and other causes of sleeplessness.

Data Collection Procedure

Data collection involved the use of a questionnaire which was administered online to respondents through different digital media channels. The respondents were briefed on the research objectives prior

to obtaining their informed consent. Responses to the questionnaire were gathered confidentially and electronically recorded.

Outcome Measures

The main outcome measure used was the relationship between sleep deprivation and accident risk for students. The secondary measures were sleeping quality, amount of sleep, daytime fatigue, drowsiness in class, lack of concentration, microsleep, and reasons for insufficient sleep.

Data Analysis

The data gathered was inputted into a spreadsheet and subjected to statistical analysis. Descriptive statistics involved the computation of frequencies and percentages in relation to categorical data like quality of sleep, hours spent sleeping, fatigue experienced during the day, accident history, and reasons for the lack of sleep. These results were then summarized through the use of graphs and tables wherever applicable.

Ethical Concerns

All subjects who took part in this study gave their consent before being included in this research project. They were allowed to participate voluntarily. The survey was conducted confidentially since the data collected were anonymous and the identities of the respondents were not revealed.

3. Results

3.1 Perception on the Effectiveness of Adequate Sleep in Preventing Accidents

More than half of the respondents (53.8%) believed that adequate sleep decreases their risk of being involved in accidents. In contrast, 26.9% of the participants were not sure about the relationship between sleep and accidents, while only 19.2% did not think that adequate sleep could prevent accidents. The majority of students appear aware that sleep is a vital factor in terms of safety and overall performance. However, a relatively large number of uncertain answers show that there is a lack of knowledge about sleep risks in students.

The results obtained are consistent with previous research carried out among university students where high awareness concerning the need to have enough sleep to perform cognitively and avoid injuries was observed. Nonetheless, being aware does not necessarily mean having healthy sleeping habits.

3.2 Self-Rated Sleep Quality

As for sleep quality, only 38.5% of the respondents rated their sleep as either good or very good. A quarter of respondents (25.0%) claimed that their sleep quality was average. On the contrary, 36.5% of the respondents experienced poor or very poor sleep quality. The frequency of poor sleep quality identified within the current study can raise certain concerns, as the lack of sleep is linked to decreased concentration and memory, fatigue, changes in mood, and an increase in accidents.

Some of the factors contributing to poor sleep quality among college students might be academic stress, inconsistent schedule, high exposure to screens, and others. The findings are consistent with those from the previous studies on the subject matter.

3.3 Incidence of Microsleep Episodes

Among the respondents, 30.8% admitted to having gone through microsleep episodes before. On the other hand, 36.5% responded that they have never gone through any such episode, while 32.7% responded

not sure whether they have been through a microsleep episode. A microsleep is an unintentional period of sleep that lasts for a short duration and occurs when one is awake. Microsleep is known to occur due to a lack of adequate sleep and the fact that some percentage of students has experienced microsleep implies that many are sleepy.

3.4 Usage of Electronic Devices Prior to Sleep

The majority of the students used electronic devices prior to going to sleep. Approximately half of the students (46.2%) said they always used the devices prior to sleeping, while 15.4% claimed that they used them often. On the other hand, only 17.3% of the students stated that they never used any electronic devices prior to bedtime. This activity may lead to sleeplessness due to the emission of blue light from these devices and increased mental arousal.

Table 1. Summary of Key Results

Variable	Response Distribution	Interpretation
Adequate sleep prevents accidents	53.8% agree, 26.9% unsure, 19.2% disagree	Majority aware of sleep–safety link
Self-rated sleep quality	38.5% good/very good, 25.0% average, 36.5% poor/very poor	High prevalence of poor sleep
Microsleep episodes	30.8% experienced, 36.5% never, 32.7% unsure	Significant microsleep occurrence
Electronic device use before bed	46.2% always, 15.4% often, 17.3% never	Widespread screen use pre-sleep

4. Discussion

In the current study, the association between sleep deprivation and the possibility of getting into accidents among college students was explored. It emerged that many of the respondents were suffering from poor quality sleep and exhibited symptoms such as tiredness during the day, drowsiness, and inability to concentrate. This suggests that sleep deprivation is prevalent among college students.

Several of the subjects claimed that they did not have enough sleep compared to the recommended number of hours, which is between 7–9 hours each day. Sleep deficiency among students could be a result of various factors, including their academic obligations, social life, and overall lifestyle. The absence of proper sleep can have a negative impact on certain cognitive processes.

Moreover, the research showed that a number of learners suffered from tiredness and even dozing off during their classes. From these findings, it is evident that lack of sleep not only has effects at night, but also has a major impact during daytime. Such fatigue decreases productivity, causes errors, and affects learning.

Usage of electronic devices prior to going to bed was one of the key causes of lack of sleep. Overuse of screens at night time can cause problems such as sleep-onset difficulty and poor sleep quality because of the influence of blue light on the body's sleep-wake schedule.

Another frequent cause of insufficient sleep was the heavy academic burden and associated stresses. Students would cut down on their sleeping time to finish up their homework, study for exams, or do

several things simultaneously. Although academic success is crucial, lack of adequate sleep can eventually lower their academic achievements.

Many of those who participated in the survey felt that lack of adequate sleep made one susceptible to accidents, and indeed, some people cited their experience of having been involved in accidents due to lack of sleep. Some of the common accidents cited included road accidents, falls, and accidents related to classroom situations.

One other key finding that came out of the study was the relationship between poor sleep quality and inability to concentrate. Poor sleepers were found to be more likely to have trouble staying focused on what they were doing. Inability to concentrate can lead to problems academically and otherwise.

In summary, the results obtained in this study indicate that sleep deprivation is a common issue among students and causes fatigue, drowsiness, lack of concentration, and accident proneness. Encouraging good sleep behaviours, limiting the use of screens, controlling academic stress, and educating about the effects of sleep deprivation could assist in achieving better health and academic performance outcomes for students.

5. Conclusion

Lack of sleep is a prevalent problem among students, which has been found to be one of the major factors contributing to their poor performance and lack of safety. The results obtained from the current study demonstrate that the majority of students suffer from insomnia, fatigue, sleepiness in lectures, and inability to concentrate. All the sleep disorders mentioned were commonly caused by staying up late watching screens, excessive academic work, and stress.

In addition, the research showed that a majority of the respondents had an understanding that there is a close connection between sleep deprivation and increased risks of accidents. Students who suffered from low-quality sleep reported having problems such as microsleeps, poor concentration, and diminished alertness, factors that could increase their chances of getting into accidents. The accidents were characterized by road traffic accidents, fall accidents, and laboratory accidents, among others.

The other significant point was the effect of modifiable lifestyle variables on the cause of sleep deprivation. Excessive consumption of electronic gadgets prior to bedtime, lengthy academic engagements, and stress issues emerged as the main causes of sleep deprivation among the learners. Because these issues are modifiable, it is possible for learning organizations to ensure that their students adopt healthy sleeping patterns through such efforts as conducting campaigns and stress management initiatives.

To conclude, the current study proves that sleep deprivation is highly correlated with the chances of accidents and low cognitive ability among students. It is important for students to have sufficient sleeping time and good-quality sleep as this will play a crucial role in promoting good health and academic performance among students. Future research using a greater sample size and objective ways of sleep evaluation is highly advised.

Limitations

There are some limitations in this study. Firstly, there is the limitation arising from the use of self-reported questionnaires for data collection, since this methodology is prone to biases in recall. Secondly, the cross-sectional research design prevents the establishment of causality between sleep deprivation and increased accident risk. Thirdly, the sample size was too small to provide a representative sample across

all students. Furthermore, there are variables like medical issues, psychological wellbeing, consumption of caffeinated drinks, and behavioral aspects that were not taken into consideration during data collection.

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