

Quantitative Research for Stem Students

Title

The Effect of Sleep Duration on Academic Performance in STEM Students

Abstract

This study investigates how the number of hours STEM students sleep affects their academic performance. Data was collected from 300 STEM students through surveys and test scores. Statistical analysis was used to determine if sleep duration influences learning outcomes in science, technology, engineering, and mathematics subjects.

Introduction

STEM students often face intense workloads, leading to reduced sleep. This research aims to analyze whether getting more sleep improves academic performance by comparing test scores with reported sleep patterns.

Literature Review

Previous studies suggest that sleep is essential for memory retention and problem-solving, both critical for STEM fields. However, many students sacrifice sleep to study longer. This study examines whether that trade-off is beneficial or harmful.

Methodology

A group of 300 STEM students was surveyed about their average sleep hours per night. Their test scores in mathematics and science subjects were analyzed to

identify patterns. A correlation study was performed to see if there is a significant link between sleep duration and academic success.

Results

Students who slept 7–8 hours per night scored an average of 15% higher than those who slept fewer than 5 hours. The analysis showed a positive correlation between sleep and performance, with diminishing returns beyond 9 hours of sleep.

Discussion

The results indicate that adequate sleep improves academic performance in STEM subjects. Students who consistently slept fewer hours performed worse, likely due to reduced cognitive function and memory retention. However, sleeping too much also showed minor negative effects, possibly due to a lack of active study time.

Conclusion

Getting 7–8 hours of sleep is optimal for STEM students to perform well academically. This study suggests that balancing study time with sufficient rest is essential for success in science and engineering fields. Future research could explore how sleep quality affects problem-solving skills.

References

All sources used in the research, cited in the appropriate academic format.