

RAJAGIRI COLLEGE OF SOCIAL SCIENCES

Department Of Computer Science

MSc Computer Science (Data Analytics)

Statistics For Data Analytics – Case Study Abstract

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Sleep pattern and academic performance of students

Abstract

Sleep is of supreme importance in a person's day to day life. It helps to maintain a proper brain functioning and critical thinking. When it comes to a student's life in order to achieve a better academic performance sleep is an essential factor. The lack of enough sleep may have many serious effects on individuals. Our aim is to identify sleep patterns among students and the frequency of daytime sleepiness during the school or college week and also to assess the relation between the sleeping pattern and duration with the academic performance among these students.

Introduction

When compared to general population school and college students are more deprived of sleep. Poor sleeping habits such as irregular sleep schedule is found among them. This may have many serious impacts on their physical as well as mental well-being.

The expected outcome of this case study is that students who get a longer duration of sleep will have a better academic performance which can be demonstrated by a higher academic grade. We also aim at determining the sleep pattern and habits among the school and college students in their academic life. By finding out if there is a relation between the average duration of sleep got by a student and their obtained academic grades, we can come to an evidential conclusion that of our hypothesis is true or not.

Methodology

A questionnaire was developed to determine sleep patterns subjective perceptions of one's own sleep quality and academic performance in students. The information is getting collected through online mode via a confidential google form from the targeted student groups.

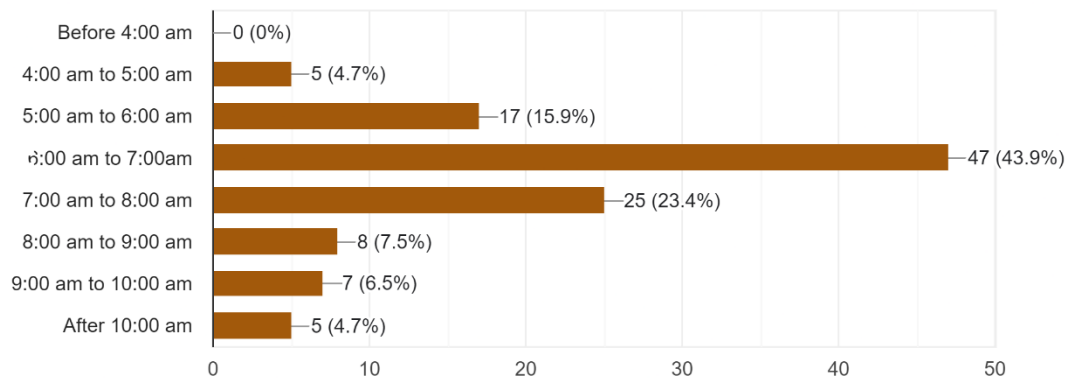
The analysis of the data collected was done using Google Excel.

The pictorial representation of data obtained was done with the help of graphs such as bar graphs and pie charts.

Results And Discussion

What time do you typically wake up during week days?

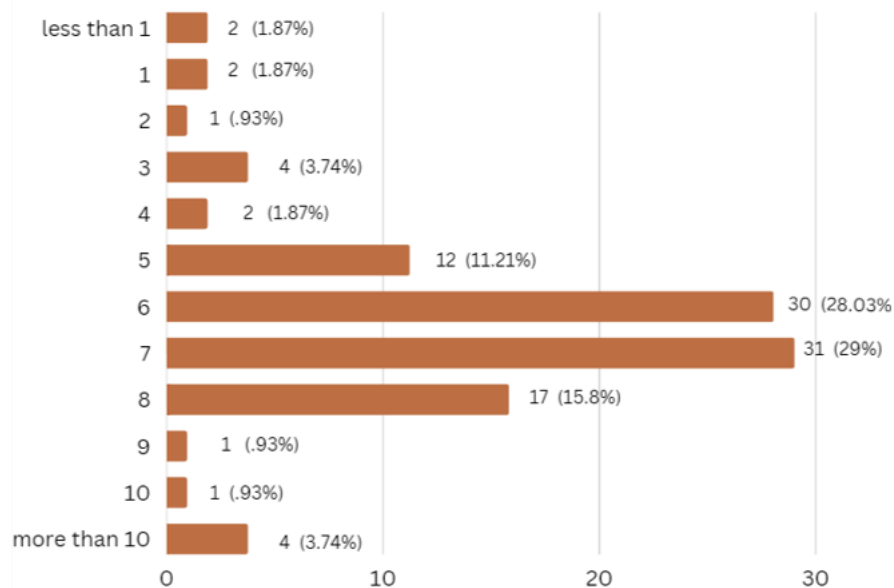
107 responses



When we analyse the time at which students wake up during week days 6 am to 7 am is the peak average time of waking up. A 43.9 percent of the sample population wakes up during this time interval.

How many hours do you typically obtain at night?

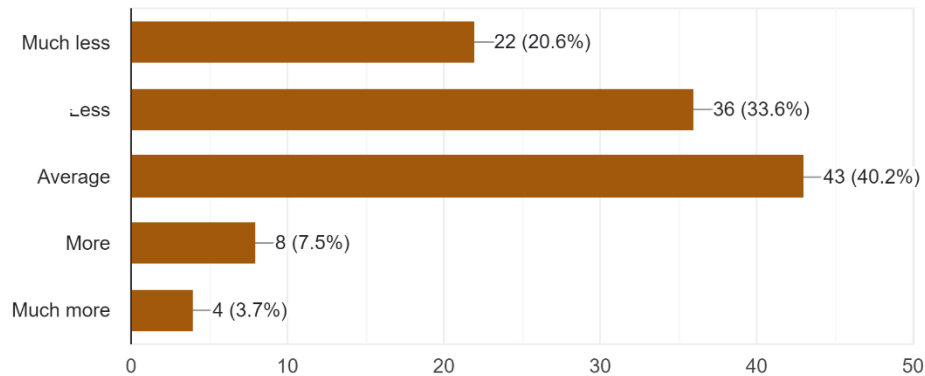
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The highest average duration of sleep got by the students at night is 7 hours followed by 6 hours. More than half of the sample population lies under this category.

On a night before an exam, rate the amount of sleep hours compared to normal

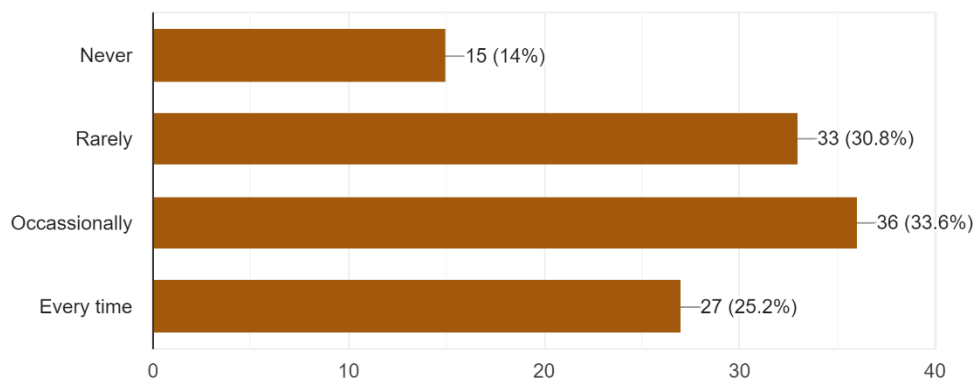
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The amount of sleep obtained by the students on the night before exams compared to normal days is average to lesser than the week day average duration. We can also see that the number of students who have more duration of sleep than normal days is only almost 12 percentage.

Do you go to bed later than usual the night before exam ?

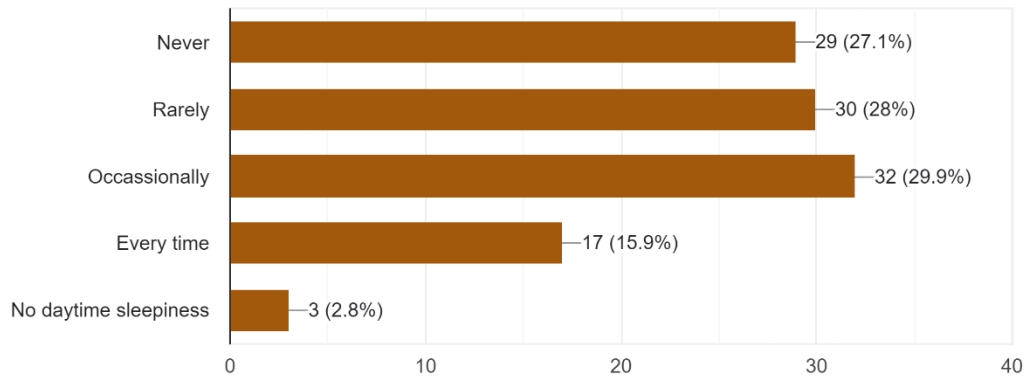
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The students also go to bed later than usual at the night before exams more frequently. From this graph we can conclude that the 58.8 percentage of total students go to bed later than usual the night before exams.

How often do you believe your daytime sleepiness affect your academic performarnce?

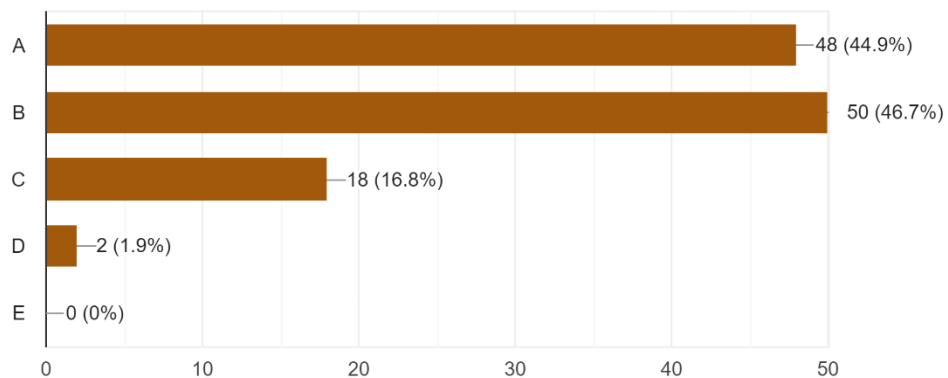
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Coming to whether the students feel if their daytime sleepiness affects their academic performance, more students tend to believe that their academic performance is not affected by their daytime sleepiness. More than half of the population opt for this opinion.

Your current academic grade

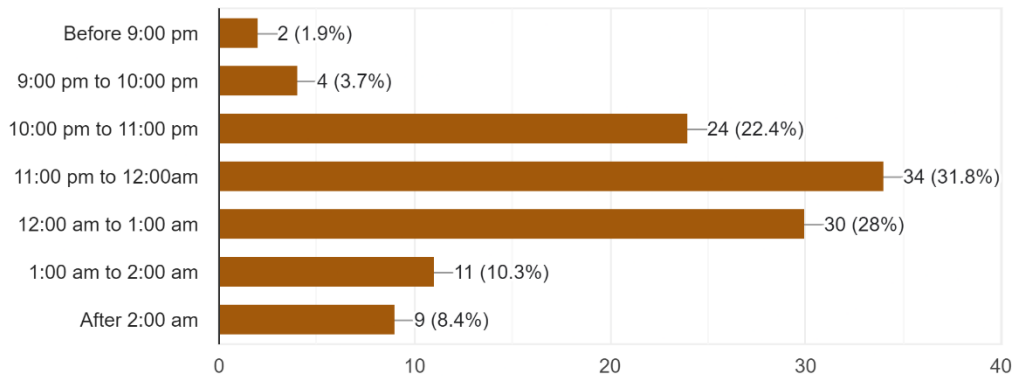
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From the responses we can analyse that 44.9 percentage of students has an academic grade A, 46.7 percentage of students have grade B, 16.8 percentage of students have C grade and 1.9 percentage of students have a D grade.

When do you typically go to bed before exams?

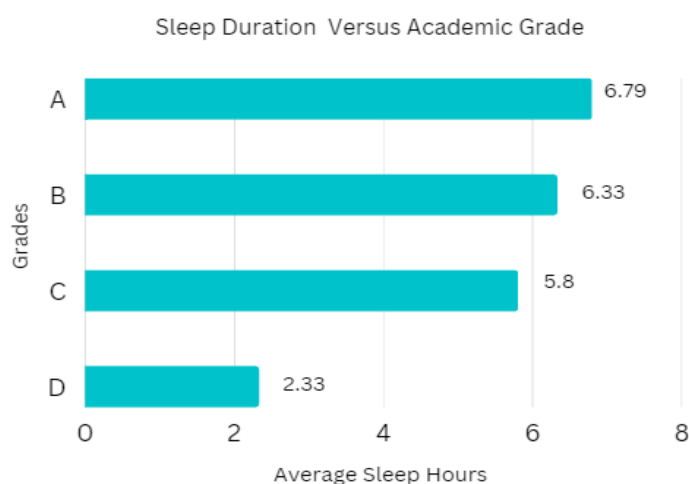
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It is evident from the graph that the larger number of student population (31.8 %) go to bed between 11 pm and 12 pm followed by 28 percent of students going to bed between 12 am and 1 am, 10.3 percentage between 1 am and 2 am, 8.4 percentage after 2 am. 28 percentage of students go to bed before the most favoured time.

Conclusion

Relation - Sleep duration and academic performance



To reach a final conclusion categorization of the number of students who got specific grades and their academic performance was done. From the graph we can analyse the relation between the academic grades of students and their average duration of sleep obtained and can find a

positive correlation. Analysing the students who got grades A, B, C and D with their average duration of sleep we can arrive at the conclusion that students who have obtained longer duration of sleep have better academic performance demonstrated by a higher grade when compared to students with shorter duration of sleep.

The obtained result of this case study is in favour of our expected outcome.

