Examining the Relationship Between number of hours of Sleep and GPA

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May 4, 2016

This paper focused on amounts of sleep college students get each night and their GPA. Both values were compared to see if there was a correlation between them. It was hypothesized that more hours of sleep each night would positively correlate with high GPAs on average. The objective of this paper was to fulfill Lab Report 2. The purpose of the writing is to fulfill course requirements for BBH 411W and to stand as a personal writing sample, but the findings should not be treated as generalizable research.
Introduction

In this study, we looked at the correlation between one’s average GPA and the amount of sleep they get on average each night. We hypothesized that there would be a correlation between the amount of sleep students got on average and their GPAs; more sleep would mean a higher GPA and less sleep would mean a lower GPA. It was found that more sleep was associated with higher cognitive function and less sleep was associated with less cognitive ability (Sivertsen).

Those students, who get the recommended amount of sleep each night will be more rested and have the ability to effectively study and complete assignments. Not sleeping enough sleep leads to inability to focus and trouble remembering information, this causes problems after students do not get enough sleep and then take an exam. Lack of sleep leads to poor performance on exams, which leads to poor academic achievement (Flood). The amount of hours of sleep the students got per night was the predictor variable. GPA was treated as the outcome variable. The data was completed in two surveys that was sent out to BBH 411w and 310 students. We used a Pearson’s correlation to test the hypothesis.

Methods

There were two groups that were examined in this study, both BBH majors, one from BBH 411W (sample 1) and one from BBH 310 (sample 2). The BBH 411W students (sample 1) answered the questions in January for course credit, and the 310 questions were sent out more
recently to answer for credit. The questions were answered in an online, anonymous survey. Everyone who responded to the survey was between the age of 18-24.

**Variables**

The predictor variable was sleep and was assessed by asking “On average, how many hours do you sleep each night.” and the response times were recorded in hours (1-10 hours). The outcome variable was GPA and was assessed by asking, “What is your cumulative GPA?” Responses were recorded in cumulative GPA and responders typed in their own answer. To test for an association, in lab 1 we conducted a Pearson’s correlation test and found the alpha was 0.05. Our data was quantitative so we used frequencies to describe the data. Data 1 did not require us to make any changes, but data 2 had several answers like “I don’t know” “it varies” and then some of the GPA responses were “2 something” or “I don’t know” so they all had to be removed.

**Statistical Analysis**

We chose to do a Pearson’s Correlation Test and the alpha was 0.05.

**Results**

For sample 1 there were 150 BBH 411w students questioned. In sample 2, there were 88 BBH 310 students questioned. Both of the variables were purely quantitative values. The predictor variable or average hours of sleep was measured on a scale of 1-1 hours of sleep per night. The outcome variable, or GPA was measured on a scale of 0.0-4.0 grade point average. For sample data 1, the average response for hours of sleep was 6.667 hours with a standard deviation of 0.1068. GPA had an average response of 3.27 grade point average and a standard deviation of 0.0. In sample 1 there were 10 people who either skipped the question altogether or answered in incorrectly. In sample 2 the average response for hours of sleep was 6.600 hours with a
standard deviation of 0.9494, and the GPA has an average of 3.15 grade point average with a standard deviation of 0.52. For sample 2, there was a total of 8 people who either skipped this question altogether or answered it incorrectly.

Among the 140 respondents for sample 1 amount of sleep was positively associated with GPA with a p-value of 0.032 (Pearson correlation, it’s r = .181, df = 138, p =.032). In sample 2, there was no association between amount of sleep and grade point average. (Pearson’s correlation, r= .205, df= 78, and p=0.068). Based on the scale of the predictor and outcome variables, we used a Pearson’s Correlation test.

The graph in Figure 1 represents sample 1 or the BBH 411w students. The results from this test were significant. It was found that more hours of sleep was positively associated with higher GPA. The graph in Figure 2 represents the data found from sample 2 or the BBH 310 students. The results were not significant and there was no correlation between average hours of sleep and average GPA.
The primary focus of the study was to test the correlation between hours of sleep and average GPA. In the first sample, among the BBH 411w 140 students who responded we found a positive correlation between hours a sleep and grade point averages that was significant.
**Results**

There was a correlation found between sleep and GPA in the BBH 411W class, but not in the BBH 310 class. This could have been due to sample size. The p value for BBH 411W was 0.032, but for the 301 class the p value was 0.068, making it insignificant. The results for the 411W class were consistent with our hypothesis, but the other class did not match our hypothesis. In a study done in Minnesota, researchers found “a significant positive correlation between amount of sleep per night with GPA” and they also focused on the quality of that sleep (Lowry 2010). There could be several reasons for this discrepancy including, the number of credits someone is taking. Those with more credits might simply have to spend more time doing work, so they get less sleep, but still have a good GPA. It could also be that the effect was too small to even be detected. Others could have exaggerated their GPA or even be unsure of the average amount of sleep they get because it can vary so much in college students. In the first test where the hypothesis was supported it could be because those who get more sleep are less involved in extracurricular activities and have more time to study; hence a higher GPA and more sleep. Lack of sleep was recently found to be equal to binge drinking and marijuana use, showing that lack of sleep should strongly correlate with GPA (American Academy of Sleep Medicine). In conclusion, no definitive finding can come from this study because one group showed a significant finding and the other did not.
References

American Academy of Sleep Medicine. “Poor sleep equal to binge drinking, marijuana use in predicting academic problems.” 1 Jun 2014.

