

The Effect of Screen Time on Sleep Duration in College Students

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INTRODUCTION

College students spend an exorbitant amount of their time doing homework on laptops, watching T.V., scrolling through social media, and more. As the amount of screen time continues to increase, the amount of time students spend sleeping each night decreases and becomes limited. Sleep is a crucial part of a person's daily routine that has an effect on the proper functioning of every physiological process in the body. The purpose of this study was to identify a potential relationship between sleep duration and the total amount of time spent watching or using a technological device in college students. Previous research has implied that properties of technology have an impact on essential functions, such as psychological well-being and academic performance in college students. We used data from our survey and the "Screen Time" app on the iPhone / Apple products to analyze the relationship between screen time and sleep duration during the 2023 spring semester for students at the University of Dayton. Researchers predict that large amounts of screen time will have an effect on sleep duration.

METHODS

This study was designed to measure the correlation between total screen time and average sleep duration. All investigators were trained, with documentation, through CITI prior to conducting this study. Participants completed a Google Form survey that they received from email or text message. Eligible participants were part-or full-time students at the University of Dayton, eighteen years or older, and owned both an iPhone and an Apple computer/iPad. Responses were anonymous and remained confidential, contained within a secure website. The survey consisted of questions centered around the aims of the study: demographics, average sleep duration, and total screen time among various technological devices. Participants were given a time period of two weeks to answer this 10-15 minute questionnaire. Each participant submitted their answers once within the allotted time frame, which was the only time the questionnaire will be administered. The goal was to receive 50 eligible survey responses. The responses were analyzed with regression and correlation tests to find the relationship between average sleep duration and total screen time duration.

RESULTS

Demographics

This study included a sample of 26 eligible participants attending the University of Dayton; 25 participants were undergraduate students and one was a graduate student. Ages of participants ranged between 18-23 years old, with the average age of 21 years. Participants identified as female (n=19), male (n=5), and non-binary (n=1). The majority of participants were Caucasian/White (n=22). Participants with other ethnic identities were also represented, including Hispanic (n=2), African-American/Black (n=1), and Asian/Pacific Islander (n=1).

Sleep Duration

The average sleep duration reported was 7.30 hours per day (n=26; SD=1.14). The average bedtime for participants was 12:30 a.m. while the average wake time was 8:44 a.m. Twenty-three participants reported taking naps in the past month. Eight people reported taking 1-2 naps in the past month, ten people took 1-2 naps per week, and four people took naps every other day. The average time participants spent napping was 1.4 hours, with a standard deviation of 1.17 hours (n=23).

Screen Time

The average screen time of all electronic devices reported by the participants was 8.36 hours per day (n=26; SD=2.43). The average screen time of iPhones was 4.86 hours per day (n=26; SD=1.61). The average screen time of iPads, reported by 9 participants, was 2.1 hours per day (SD=1.91). The average screen time of Apple computers was 3.3 hours per day (n=20; SD=2.1).

Sleep Duration and Screen Time

Table 1.1 and Figure 1.1 show the relationship between each participant's average daily screen time and average daily sleep time, both of which are measured in hours. A regression analysis revealed that there is not a statistically significant relationship between screen time and sleep duration because the p-value is 0.45 (greater than 0.05). Furthermore, a correlation test was conducted to explore the influence of sleep duration and screen time. Results of the correlation test showed a negative relationship and weak correlation between sleep duration and screen time ($r = -0.16$).

Average Daily Screen Time	Average Daily Sleep Time
5.9	7.25
11.53	7
7.19	7.5
5.61	6.5
6.02	7
4.91	8
6.03	8
7.48	8
9.94	8
10.37	7
7.07	6.5
7.68	5.5
8.04	5.5
14	8
7.89	8
8.69	10
5.56	8
7.21	8
11.24	7
11.68	6.5
7.19	9
12.26	6
10	5
6.41	7
9.17	8.5

Table 1.1: Compares average daily screen time (in hours) to average daily sleep time (in hours) between each participant.

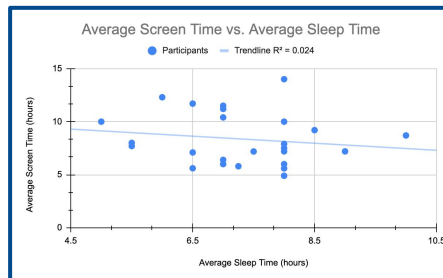


Figure 1.1: Conveys the trend between each individual's average daily screen time (in hours) and average daily sleep (in hours).

CONCLUSIONS

This study did not find a significant relationship between screen time and sleep duration. Although both Table 1.1 and Figure 1.1 show that participants generally spent more time on screens compared to time spent sleeping, there is not a consistent trend. Thus, the two variables are weakly correlated. We cannot draw significant conclusions from our results due to multiple limitations and errors in this study, which may have affected our results. This study had a lot of exclusion variables, which resulted in a relatively small sample size of eligible participants (n=26), the majority of whom were female and white. Therefore, our data was not representative of the college student population. Another limitation was the allotted time to take the survey of 10 days. We did not have ample time to send the survey to many students and wait for more responses. Also, our survey required people to follow a set of instructions to record their screen time on their devices, which may have deterred students from participating. Finally, our survey represented total screen time over a three week period, which incidentally included the week of spring break. Therefore, a lack of daily college routine and other external variables may have impacted participants' screen time. We accepted our null hypothesis: there is not a significant relationship between screen time and sleep duration. However, other studies have shown that as screen time increases, sleep duration decreases and that there is a significant relationship between these variables. Further research needs to be conducted to clarify the relationship between screen time and sleep duration in college students.

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