UC San Diego

Herbert Wertheim School of Public Health and Human Longevity Science

Exploring the Effects of Different Media Types on Sleep Quality Among University Students

Christopher Than, Franklin Tran, Mark Guiriba

Herbert Wertheim School of Public Health and Human Longevity Science, UC San Diego

Background

- There is strong consensus within sleep literature that prolonged digital screen use negatively impacts aspects of sleep. Increased screen time has been associated with disruption in sleep patterns,[1] shorter sleep duration,[2] worse sleep-efficiency,[2] and more.
- Less is known about associations between different media types (video games, social media, etc.) and sleep. Exploration on this topic has been conducted on mostly adolescents and children. To our knowledge this topic has not been studied on college students - a population at risk for poor sleep outcomes.[3]
- It has been suggested that different screen types may influence health differently.[4]
- Poor sleeping conditions such as daytime sleepiness, sleep deprivation, and irregular sleep schedules are highly prevalent in college students.[5]
- Overall weekly digital device usage has significantly increased since the start of the COVID-19 pandemic.[6]

Objective

To determine whether there are associations between different media types, the duration of their use, and their effects on sleep quality among university students.

Methods

- A cross-sectional survey via Qualtrics was disseminated through various social media platforms to college students in the United States over four weeks.
- Snowball sampling was also used to gather more survey participants.
- Exposures - different screen types: video media, communication, photo & text based social media, video games, work/school.
- Outcome - sleep quality: sleep duration, onset, latency, and offset.
- Sleep onset is the time a person usually falls asleep and sleep offset is the time a person usually wakes up.
- Sleep latency is the time it takes for an individual to fall asleep.

Results

Table 1: Demographics (N = 107)

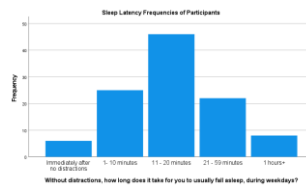| Academic Standing	
Freshman	13 (12.2%)
Sophomore	15 (14.0%)
Junior	23 (21.5%)
Senior	47 (43.9%)
Master Student	6 (5.6%)
Doctoral Student	3 (2.8%)
Gender	
Male	46 (43%)
Female	58 (54.2%)
Non-Binary	2 (1.9%)
Prefer not to answer	1 (0.9%)
Race	
Asian American/Asian	79 (73.8%)
White/Caucasian	23 (21.5%)
African American/Black	1 (0.9%)
Native Hawaiian/Pacific Islander	1 (0.9%)
Other	5 (4.7%)
Prefer not to state	2 (1.9%)

Figure 1: Sleep Latency. Average sleep latency was 11-20 minutes.
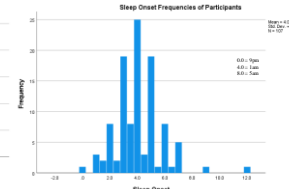

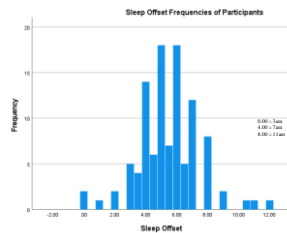**Figure 2**: Sleep Onset starting at 9am. Mean = 1 am, SD = ± 1.7 hours

Figure 3: Sleep Offset starting at 3am. Mean = 8:30 am, SD = ± 1.95 hours
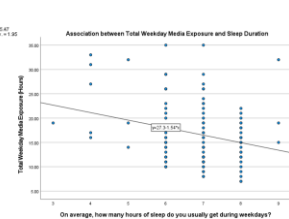

Figure 4: Negative linear regression model examining association between increased overall media exposure (from all media types) and sleep duration. ($p < 0.05$)

A. Effects of Media Exposure on Sleep Onset						
Dependent Variable: Sleep Onset	Constant	Video Media	Communication	Photo & Text based Social Media	Video Games	Work/School
Unstandardized B	4.757	-0.67	.135	-.044	.150	-2.43
Standard Error	.512	.096	.094	.100	.079	.090
P-Value	<.001	.484	.155	.661	.061	.008

B. Effects of Media Exposure on Sleep Offset						
Dependent Variable: Sleep Offset	Constant	Video Media	Communication	Photo & Text based Social Media	Video Games	Work/School
Unstandardized B	7.166	-0.088	0.095	.051	.097	-.419
Standard Error	.578	.108	.106	.113	.090	.101
P-Value	<.001	.417	.372	.654	.284	<0.001

Table 2: The tables above are showing results of multivariable linear regression models A and B. They are examining the relationship between daily exposure within each media type and its effect on sleep onset & offset.

Conclusions

- An increase in overall media exposure (from all media types) was associated with lower sleep duration among students.
- Besides the media type work/school, there were no significant differences between different media types and our measures of sleep quality.
- Work/school was found to be the only media type that was affecting sleep onset and offset at a statistically significant level ($p < 0.05$).
- An increase in work/school media exposure was associated with decreased sleep onset and offset times.
- Participants sleep latency followed MSLT (multiple sleep latency test) findings, with 11-20 minutes being the most commonly reported time frame.
- There are many outside factors that may be influencing college students sleep quality, with stress, caffeine consumption, and work being the most commonly self-reported factors.

Policy Implications

- University student health services should consider developing education curriculum on sleep to promote better sleep quality.
- Additionally, universities should create screen time guidelines for students.

Acknowledgement

References

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