Effect of Phone Texting and Screen Use on Sleep

Yinuo Guo

Why important?

- Without enough sleep, the brain cannot function properly.
- Studies suggest that phone use and screen use are associated with sleep (Cabré-Riera et al., 2019).

Main hypothesis

- People who did screen activity one hour before they go off to sleep will be more likely to have lower sleep quality.
- People who text one hour before they go off to sleep will be more likely to have lower sleep quality.

Design

Context: weekdays (Sun, Mon, Tues, Wed, Thurs)

Dependent variable:

- Sleep quality
  - Sleep Hours
  - Fall Asleep
  - State(uncomfortable)
  - Poor Sleep

Independent variables:

- Texting
  - Avg Pathological Texting
  - Avg Text Mental Arousal
  - Mood Modification
- Screen use
  - Avg Screen Mental Arousal
  - Screen Problem Use
  - Eye Strain

Participants:

- Undergraduate Students in Boston College

Results

- **Listwise Deletion & Pairwise Deletion**
- **Correlation Matrix**
- **Linear Regression**

Dependent variable: sleep hours

Independent variables:
Average Screen Mental Arousal,
Average Pathological Texting

Linear Regression

Model Fit Measures

Model	R	R^2	Overall Model Test F	df1	df2	p
1	0.475	0.226	4.23	2	29	0.024

Omnibus ANOVA Test

	Sum of Squares	df	Mean Square	F	p
AvgScreenMA	3.34	1	3.34	2.07	0.161
AvgPathText	2.81	1	2.81	1.74	0.198
Residuals	46.81	29	1.61		

Note. Type 3 sum of squares

[3]

Model Coefficients - SleepHours

Predictor	Estimate	SE	t	p	Stand. Estimate
Intercept	3.080	0.790	3.90	<.001	
AvgScreenMA	0.384	0.267	1.44	0.161	0.281
AvgPathText	0.348	0.263	1.32	0.198	0.258

Dependent variable: fall asleep

Independent variables:
Average Pathological Texting
Average Texting Mental Arousal

Linear Regression

Model Fit Measures

			Overall Model Test			
Model	R	R^2	F	df1	df2	p
1	0.483	0.233	4.57	2	30	0.019

Model Coefficients - fallAsleep

Predictor	Estimate	SE	t	p	Stand. Estimate
Intercept	0.267	0.497	0.536	0.596	
AvgPathText	0.330	0.188	1.753	0.090	0.366
AvgTextMA	0.131	0.173	0.757	0.455	0.158

Dependent variable: poor sleep

Independent variable: Average Pathological Texting Worried about Courses

Linear Regression

Model Fit Measures

			Overall Model Test			
Model	R	R^2	F	df1	df2	p
1	0.484	0.234	4.43	2	29	0.021

Omnibus ANOVA Test

	Sum of Squares	df	Mean Square	F	p
AvgPathText	4.76	1	4.76	3.67	0.065
WorriedAboutCourses	4.77	1	4.77	3.67	0.065
Residuals	37.70	29	1.30		

Note. Type 3 sum of squares

[3]

Model Coefficients - poorSleep

Predictor	Estimate	SE	t	p	Stand. Estimate
Intercept	–0.128	0.854	–0.149	0.882	
AvgPathText	0.406	0.212	1.914	0.065	0.316
WorriedAboutCourses	0.265	0.138	1.915	0.065	0.316

Dependent variable:
state(uncomfortable) -When you wake up, you feel uncomfortable.

Independent variables:
Eye Strain
Screen Problem Use
Worried about Courses

Linear Regression

Model Fit Measures

			Overall Model Test			
Model	R	R^2	F	df1	df2	p
1	0.454	0.206	3.81	3	44	0.016

Model Coefficients - State(uncomfortable)

Predictor	Estimate	SE	t	p	Stand. Estimate
Intercept	0.626	1.126	0.556	0.581	
EyeStrain	0.388	0.276	1.406	0.167	0.220
screenProblemUse	0.252	0.211	1.194	0.239	0.185
WorriedAboutCourses	0.256	0.149	1.718	0.093	0.235