

Smartphone Use, Social Support, and Sleep Health

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Sleep and Sleep Disorders

A third of US adults report that they usually get less than the recommended amount of sleep. Not getting enough sleep is linked with many chronic diseases



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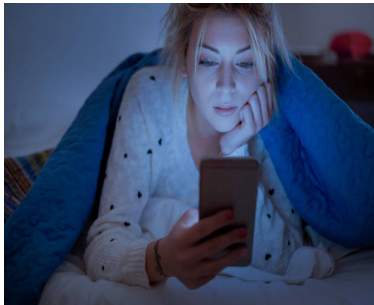
Sleep and Sleep Disorders

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The Harm of Sleep Deprivation

- The decline of memory
- Mood: make one feel irritable
- Decrease work performance
- Decrease driving ability

How Smartphones Affect Sleep



(c) Blue light \Rightarrow Circadian clock



(d) Reduce the time for sleep



(e) Increases alertness at night

Is Smartphone Use Always Bad for Sleep?

- Work vs. Romantic \Rightarrow Sleep ?
- Call vs. Message \Rightarrow Sleep ?

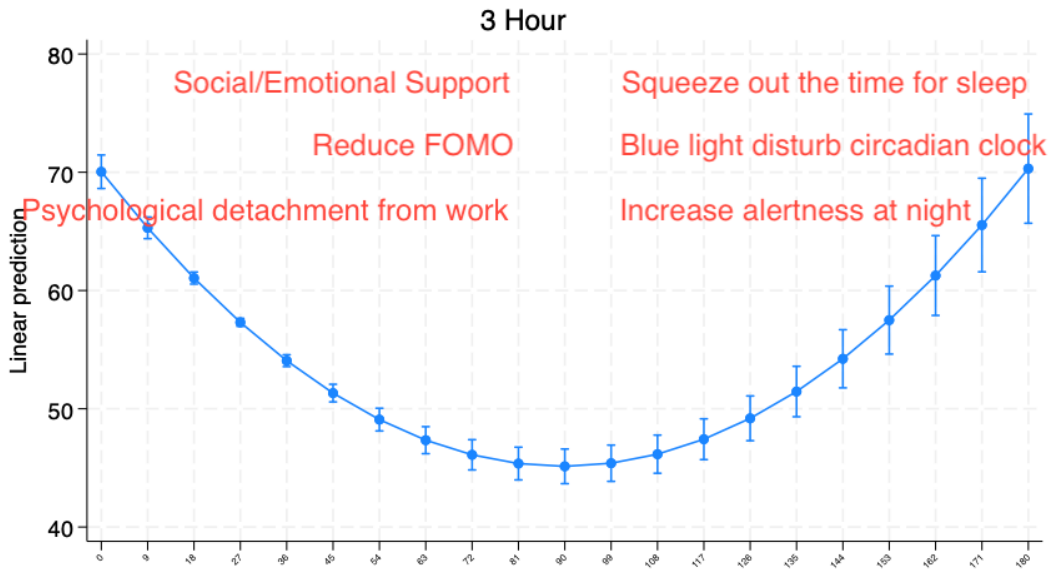
Research Question

Is Smartphone Use Always Bad for Sleep?

- Work vs. Romantic \Rightarrow Sleep ?
- Call vs. Message \Rightarrow Sleep ?

Research Question

- How does smartphone communication affect sleep?
- Does the effect vary with social relationships?



Method and Data

Data Source



551 Undergraduates



2015 ~2019

Method and Data

Data Source



551 Undergraduates



2015 ~ 2019

Tools



Fitbit

(N=297,458)



Smartphone

(N=60,5M)



Survey

(8 waves)



Method and Data

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Sleep Quality



(N=60,5M)



Call



Message



(8 waves)



Social Network

DV and IV

Method and Data

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Sleep Quality



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Call



Message



(8 waves)

Survey



Social Network

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Other Variables



Steps



Light Exposure



Calorie Burned



Day of Week



Floors Climbed



Semester/Break



Nap

Sleep Cycle



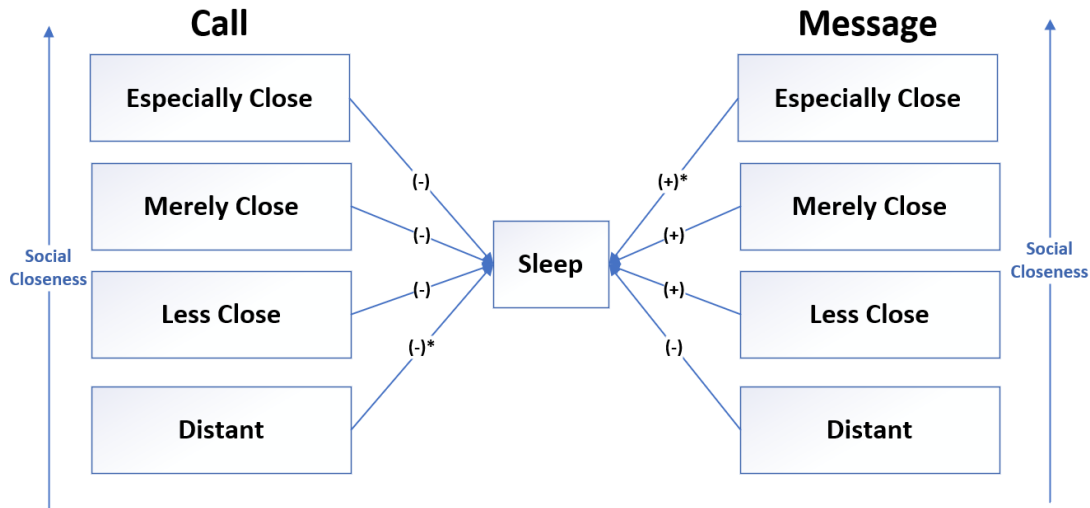
Sleep Cycle



Model

$$SleepDuration_{it} = \beta_0 + \beta_1 \cdot \mathbf{Call}_{it} + \beta_2 \cdot \mathbf{Message}_{it} + \theta \cdot \mathbf{X}_{it} + \alpha_i + \eta_t + \varepsilon_{it}$$

Results



With the increase of social closeness, communication with smartphones can be **beneficial**.

Robustness Checks

- Alternative DVs
- Reverse causality check
- Control for the time of falling asleep
- Day of the week/University schedule

Robustness Checks and Limitations

Robustness Checks

- Alternative DVs
- Reverse causality check
- Control for the time of falling asleep
- Day of the week/University schedule

Limitations

- Archived data \Rightarrow Confounding Variables
- Non-representative sample of participants
- Other types of smartphones use