



Objectives

To identify the association between prolonged exposure to blue light from electronic use at bedtime and sleep quality in UCSD students.

Background

- Sleep quality is important to an individual's physical and mental health, yet 60% of college students are deficit in this area (Lund, 2010).
- Students tend to spend a large amount of time on blue light emitting electronic devices (BLEED) for educational and recreational purposes.
- Extended exposure to blue light can cause malfunctions in melatonin, which could lead to worsened sleep quality (Figueiro, Wood, Pittnick & Rea, 2011).
- 48% of students also reported that daytime sleepiness reduced their quality of life (Lund 2010).

Methods

- We conducted a research study through an online survey that was disseminated through various social media platforms and email.
- Participants answered questions regarding basic demographics, their exposure to blue light, and their overall sleep quality.
- Data collection occurred for 2 weeks from late April to early May 2020.
- 100 responses were recorded. Survey responses from 4 non-UCSD students were removed and not included in the data analysis.

Results

Table 1: Demographics of participants N=96

		N (%)
Gender	Female	56 (58.3%)
	Male	39 (40.6%)
	Non-Binary	1 (1.0%)
Age	18-19	28 (29.2%)
	20-21	37 (38.5%)
	22-23	26 (27.1%)
	24+	5 (5.2%)
Year of Education	1st Year	18 (18.8%)
	2nd Year	17 (17.7%)
	3rd Year	13 (13.5%)
	4th Year or Above	48 (50.0%)
Major	Public Health	27 (28.1%)
	Other	69 (71.9%)

Figure 1: Effects of exposure to BLEED before bed on overall sleep quality. Time spent on BLEED is significantly associated with rating of overall sleep quality (p=0.043).

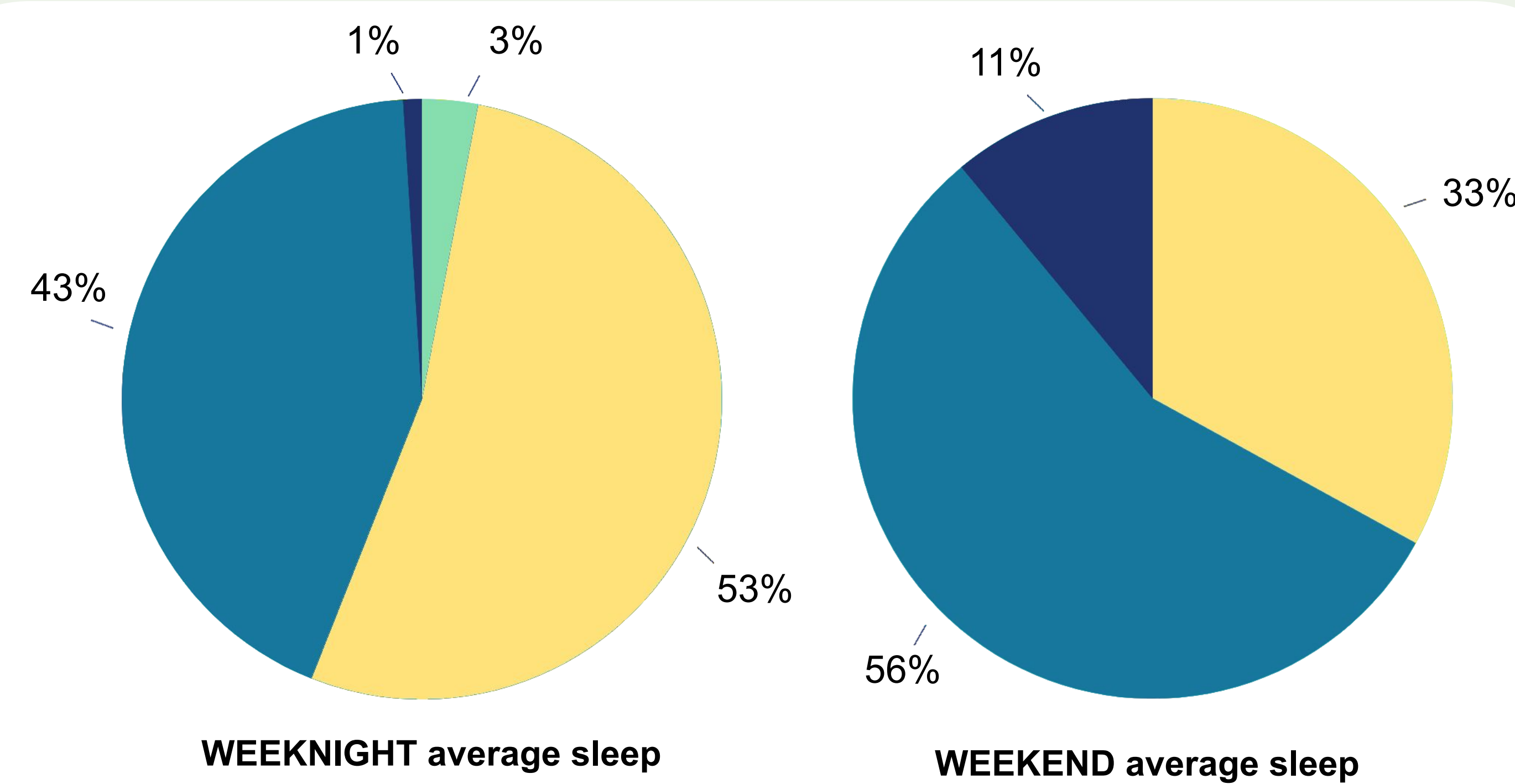
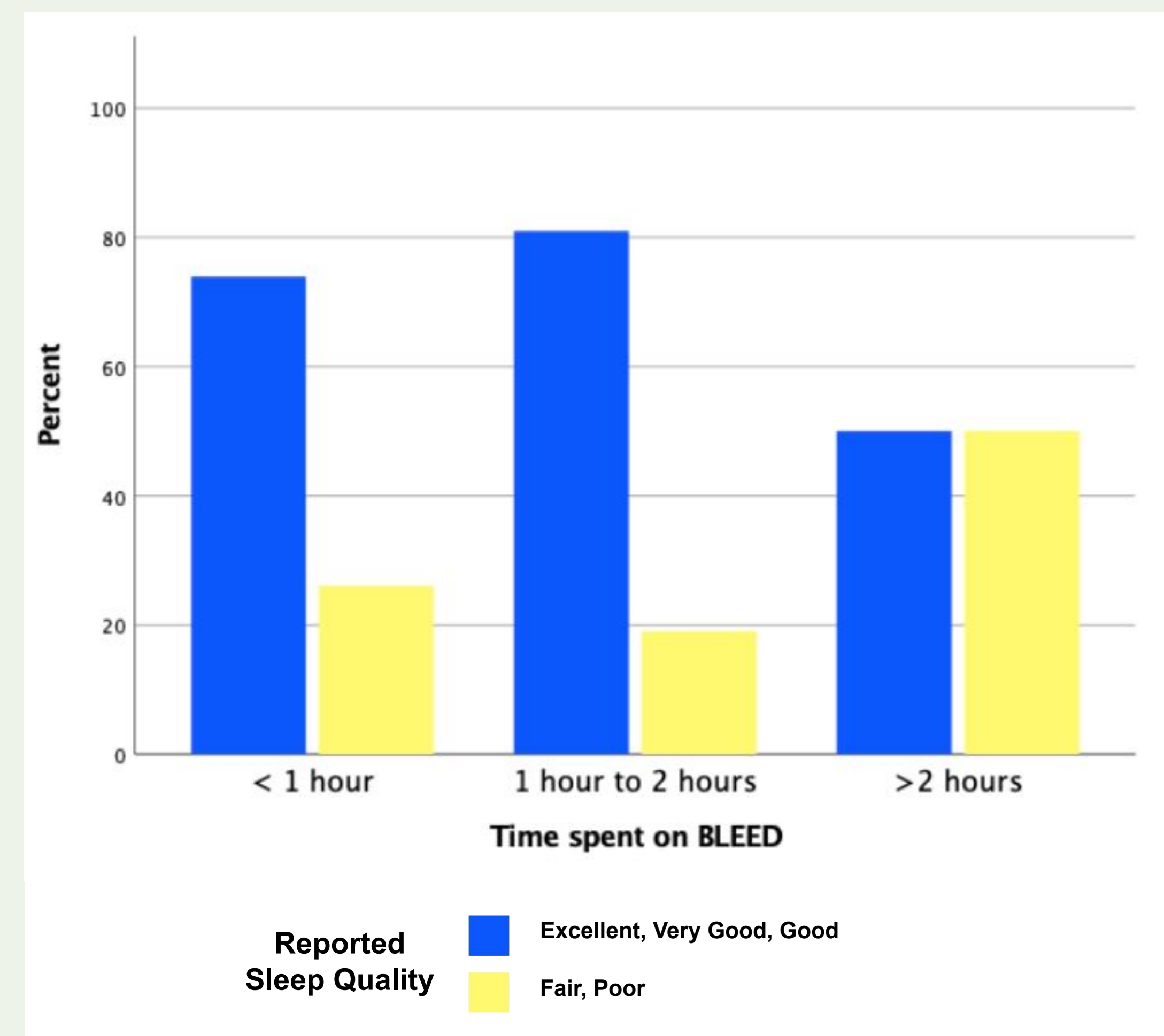
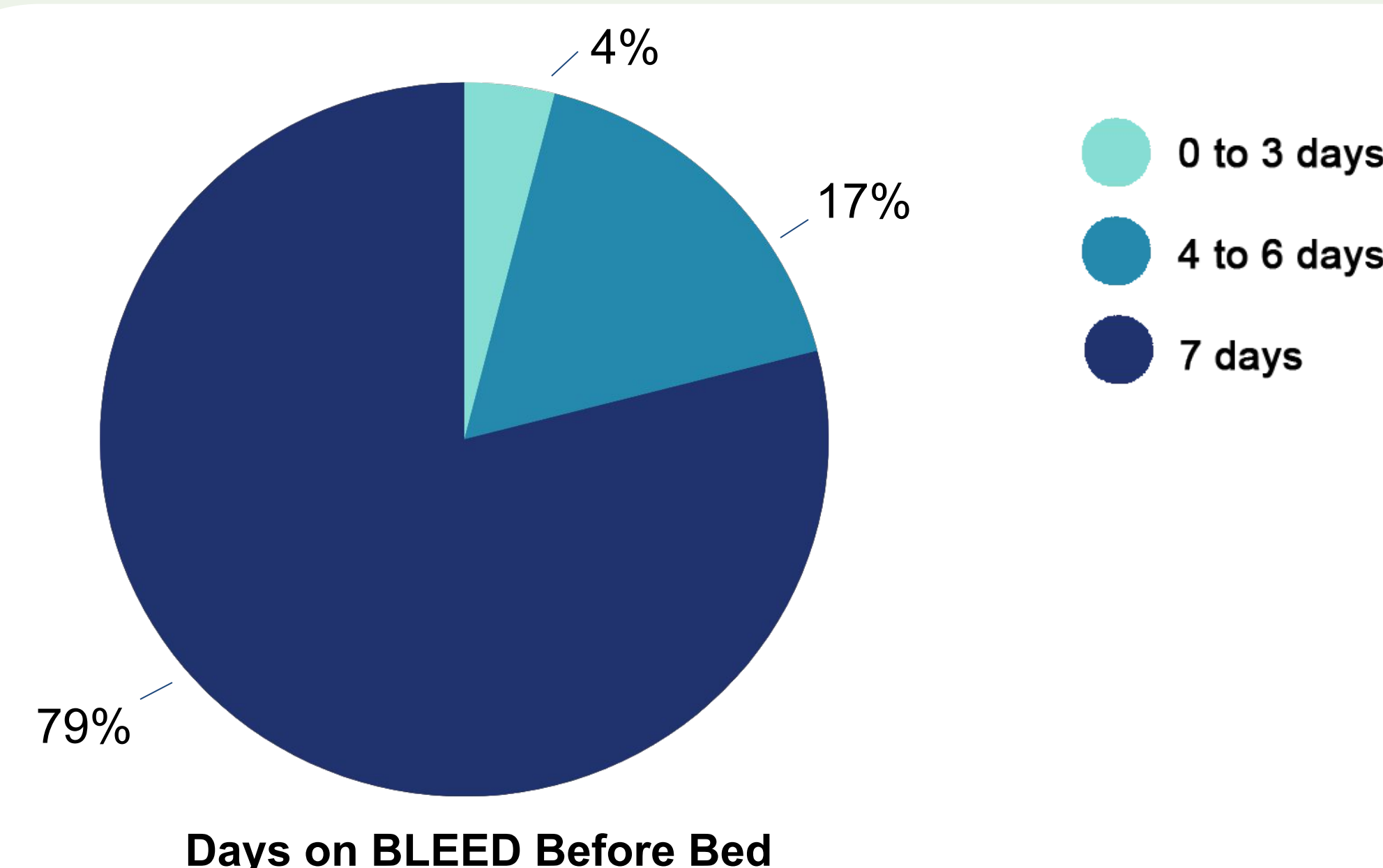


Figure 2: Comparison of average amount of sleep for students on weekday nights and weekend nights.

Figure 3: 79% of students are on BLEED before bedtime 7 days out of the week



Conclusions

- Our findings suggest that exposure to blue light may have an effect on sleep quality.
- Many students are getting less than the recommended amount of sleep each night, while spending a lot of time on BLEEDs before bed.
- Students should limit the overall amount of time they spend on BLEED at bed time.

Policy Implication

- More studies should be done on blue light exposure throughout different populations in order to better understand its effects on sleep quality.
- Further results could promote public health action from governments or incentivize tech companies to develop products that reduce blue light.

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References

Figueiro, M.G., Wood, B., Plitnick, B., & Rea, M.S. (2011) The Impact of Light from Computer Monitors on Melatonin Levels in College Students. *Neuro Endocrinology Letters*, U.S. National Library of Medicine, Retrieved from www.ncbi.nlm.nih.gov/pubmed/21552190.
 Lund, H. G., Reider, B. D., Whiting, A. B., & Prichard, J. R. (2010). Sleep patterns and predictors of disturbed sleep in a large population of college students. *Journal of adolescent health*, 46(2), 124-132. doi:10.1016/j.jadohealth.2009.06.016