



# The Association Between Sleep and Emotional Wellbeing in Adolescents



Melanie Lim, Applied Data Analysis, Wesleyan University

## Introduction

- Between 2009 and 2019, the prevalence of insufficient sleep duration or quality has decreased in the US in adolescents (Ng, Adjaye-Gbewonyo & Black, 2022)
- Adequate sleep is critical for wellbeing and mental health, and holds a vital role in emotions, overall behavior, and development (Qiu & Morales-Muñoz, 2022).
- Adolescents between the age of 13 and 18 should be sleeping for 8-10 hours each night and yet, 77.9% of high school students experience short sleep duration or poor sleep quality (CDC 2023).

## Research Questions

- What is the relationship between amount of sleep and emotional wellbeing in adolescents in the U.S.?
- How does that relate to those who suffer from insomnia?
- How does sufficient sleep relate to hours of sleep in terms of happiness?

## Methods

### Sample

- Respondents (n=6463) were drawn from the U.S. National Longitudinal Survey of Adolescent Health, a nationally representative sample of adolescents (grades 7-12) in the U.S. that contains environmental, behavioral, psychological, biological, and genetic data.

### Measures

- Perceived Sleep is measured from the survey where participants answered the question "Do you usually get enough sleep?" Possible responses were 0 (No), 1 (Yes)
- Participants were asked how often these statements apply in the last week and possible responses were 0 (Never or rarely), 1 (Sometimes), 2 (a lot of the time), or 3 (most of the time or all of the time). ("You were happy")
- Hours of sleep measures average hours of sleep (range 1-20)

## Results

### Bivariate

- Chi-Square analysis showed that feeling happy was significantly associated sufficient sleep ( $p = 8.153e-14$ ).
- Those who got sufficient sleep were more likely to feel happy all or most of the time (41%) compared to those who do not get sufficient sleep (Fig.1).

### Multivariate

- Logistic regression analyses showed that adolescents who sleep 6-10 hours with infrequent insomnia are more likely to be happy compared to adolescents who have frequent insomnia (OR 2.12,  $p < 2e-16$ ).
- Frequency of insomnia significantly moderates the relationship between average hours of sleep and frequency of happiness (OR 2.12,  $p < 2e-16$ ). (Fig. 2).
- For every 1 hour of sleep, adolescents were 11.3% more likely to be happy.

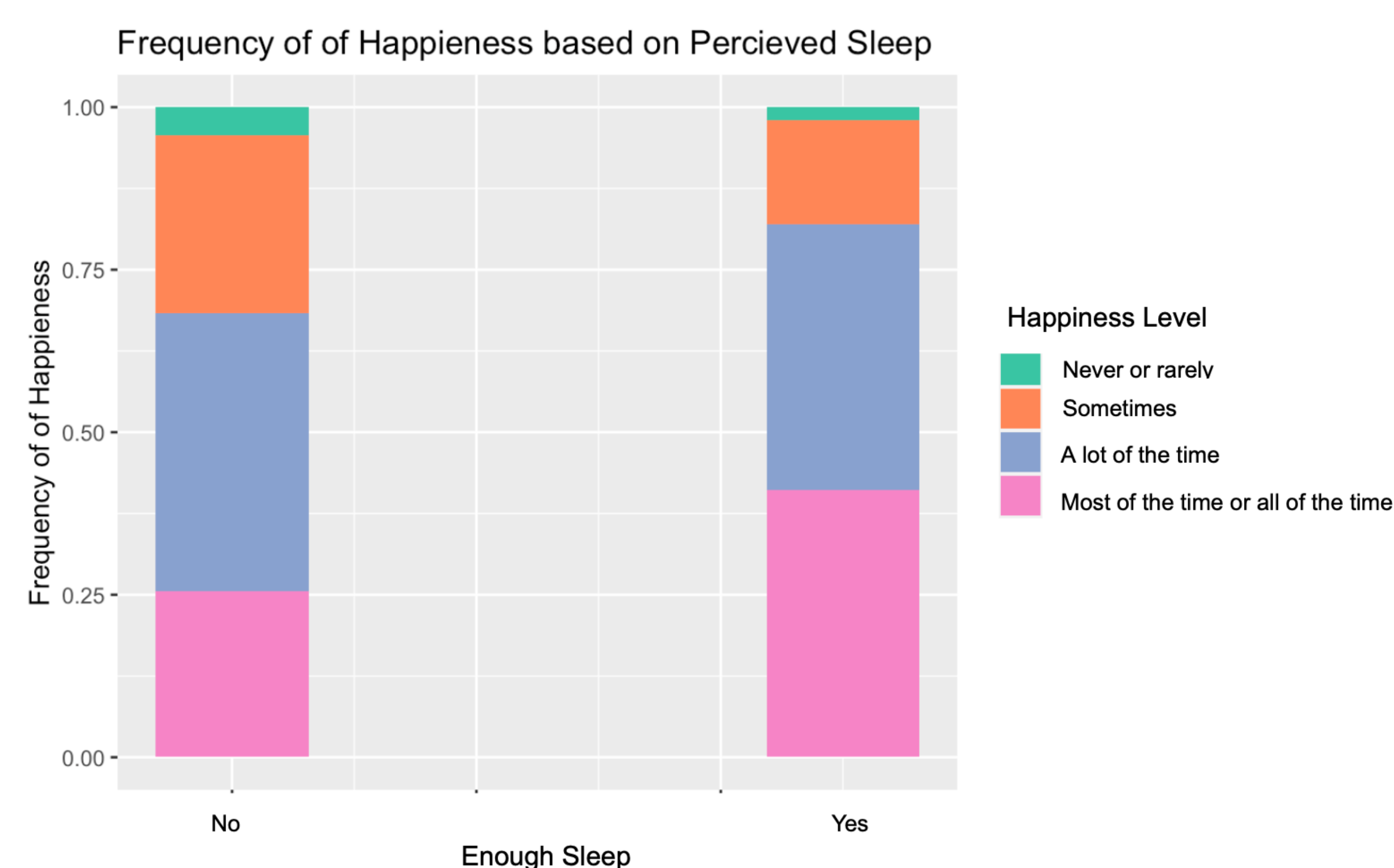


Figure 1: The Frequency of Happiness based on Perceived Sufficient Sleep

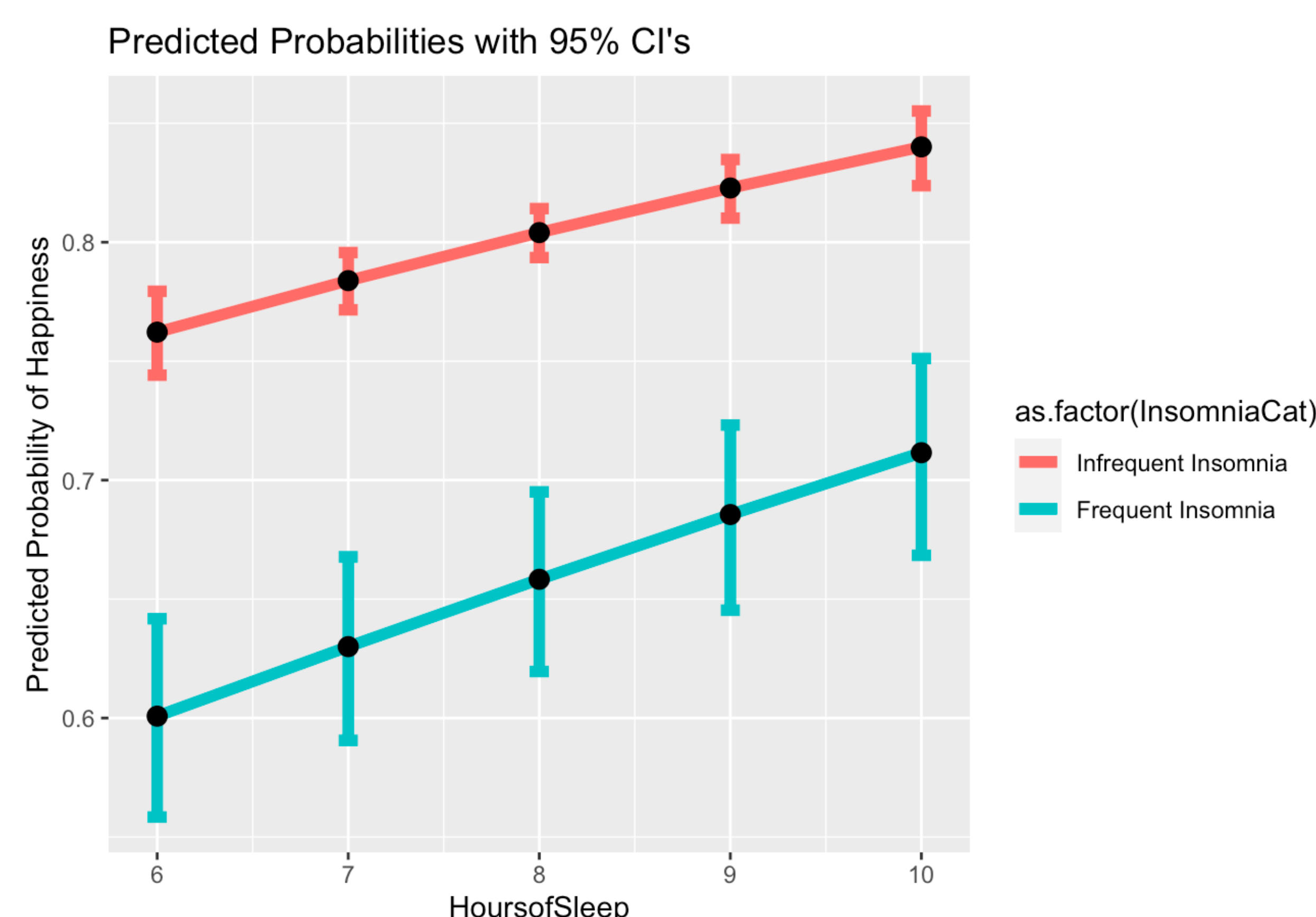


Figure 2: Frequency of Happiness in Adolescents by Hours of Sleep Controlling for Insomnia

- InsomniaCat and HappyCat are both categorical variables that measure frequency of happiness/insomnia.

## Discussion

- Overall, this data is evidence of the importance of sleep for emotional wellbeing of adolescents.
- Both perceived sufficient sleep and hours of sleep both increase frequency of feeling happy.
- These findings may contribute to adolescent health research.
- Future research is needed to determine what are the reasons behind insufficient sleep in adolescents, which is not included in this study.

## References

- Qiu, J., & Morales-Muñoz, I. (2022). Associations between Sleep and Mental Health in Adolescents: Results from the UK Millennium Cohort Study. *International journal of environmental research and public health*, 19(3), 1868. <https://doi.org/10.3390/ijerph19031868>
- Ng, A. E., Adjaye-Gbewonyo, D., & Black, L. I. (2022). Regular bedtimes among children aged 5–17 years: United States, 2020. *National Center for Health Statistics (U.S.). NCHS data brief; no. 437*. Retrieved from <https://stacks.cdc.gov/view/cdc/117489>