

# EFFECTS OF SLEEP HEALTH EDUCATION ON ADOLESCENT SLEEP



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## ABSTRACT

Sleep research studies aimed at increasing sleep duration often utilize sleep health education materials to promote better sleep hygiene. However, these resources are not always up to date with the current approaches to improving sleep. This project aimed to (1) review qualitative data from the Rutgers Sleep Lab "Sleep Health in Adolescents" pilot study and (2) conduct a systematic evaluation of sleep health education strategies and literature. The purpose of the "Sleep Health in Adolescents" pilot study was to determine if increasing time-in-bed for sleep to 10h/night for one week would be feasible in an adolescent population. For one week participants were prescribed a bed time and wake time, provided with time management and sleep hygiene strategies, and received payment contingent upon adherence to the assigned sleep schedule. A follow-up questionnaire was administered at the end of the week to assess participant perceptions of their experience and how other lifestyle factors changed. Data from this questionnaire are detailed in the results section. Pilot study results indicated that teens reported sleeping more, felt less sedentary and were in a better mood after completing the study. In addition, based on a literature review and feedback from this pilot study, brochure handouts were determined to be an effective strategy for improving sleep hygiene. A comprehensive educational brochure was developed based on the current practices utilized in recent sleep literature to improve sleep hygiene. This brochure will be used by The Rutgers Sleep Lab in future research studies aimed at increasing time in bed for sleep in teens.

## INTRODUCTION

- The current sleep recommendation for adolescents is 8-10h/night (1).
- Brochures are an effective health education resource to aid in increasing knowledge about sleep and improving sleep quality(2).
- Sleep brochures that included sleep hygiene tips contributed to an increase in mean nighttime sleep and a reduction in weekday sleepiness (3,4).
- Brochures have been shown to be an effective method to significantly increase mindfulness, and serve as a helpful resource for parents to plan and create positive improvements to their child's sleep routine (5).

### The goals of this project were to:

- 1) Analyze feedback from an existing pilot study in teens to evaluate Rutgers Sleep Lab's current approaches for sleep education.
- 2) Evaluate existing sleep health education literature to develop the best strategies for improving sleep.
- 3) Construct a "Sleep 101 For High School Students" brochure to be used in future sleep lab studies aimed at improving sleep in teens.

## METHODS

### Pilot Study

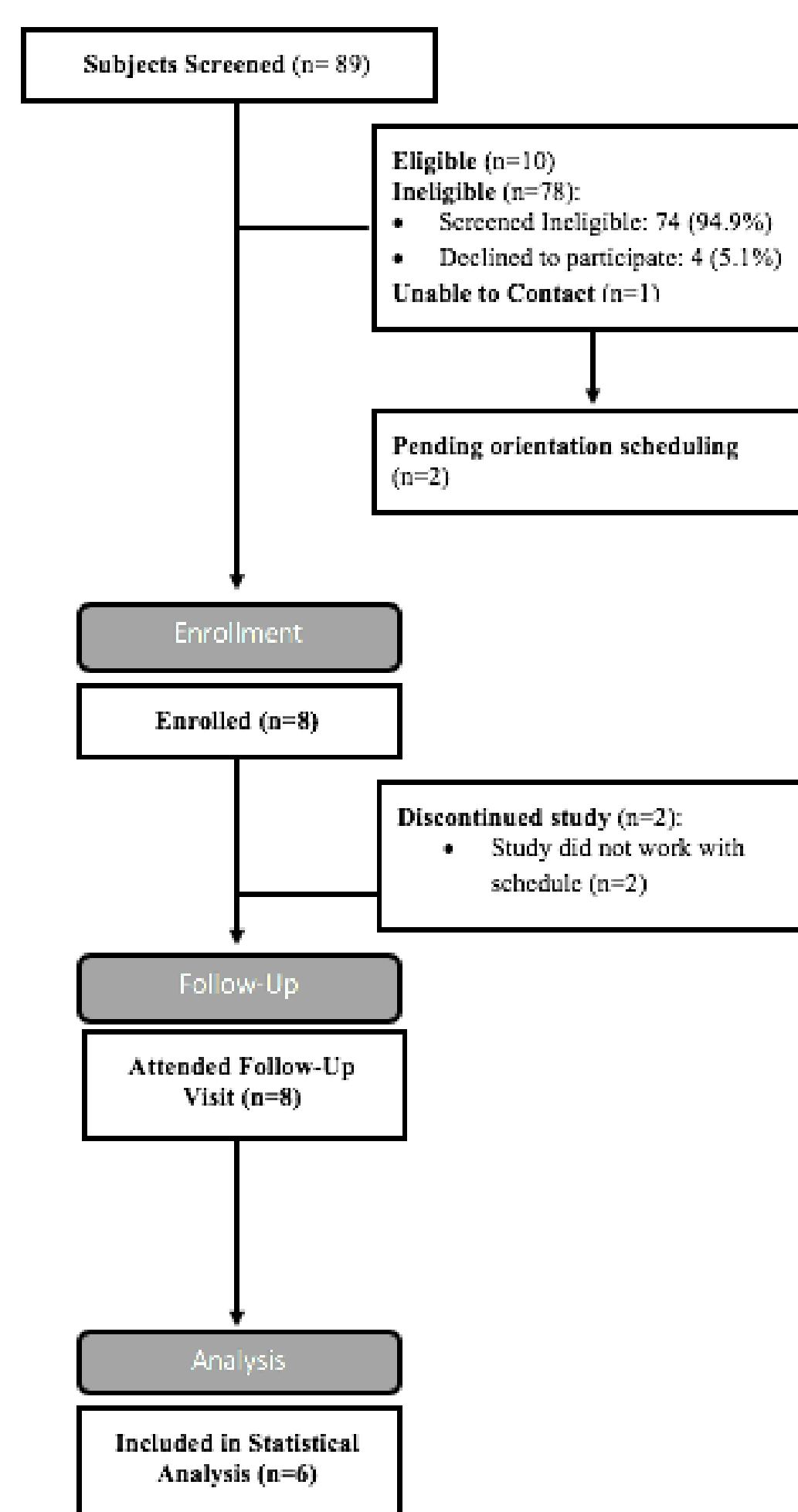
- Subjects were recruited from the greater New Brunswick, New Jersey area and completed a phone screen and in-person screen to determine eligibility
- All subjects were age 14-17, had a typical sleep duration ~7hr/night on school nights, and reported willingness and ability to complete study-related tasks.
- Participants were prescribed a bed time and wake time, provided with time management and sleep hygiene strategies, and received payment contingent upon adherence to the assigned sleep schedule in order to ensure that participants increased time-in-bed for sleep to 10 hours per night.
- At the study orientation visit, the study coordinator reviewed sleep health educational materials on sleep which focused primarily on the importance of a proper sleep environment, sleep consistency, and food and beverage consumption.
- Six subjects successfully completed a follow-up questionnaire to assess study feasibility and the impact of increased time in bed for sleep after one week (changes in sleep duration, level of physical activity, level of sedentary activity, eating habits, school performance, and mood).
- Data was analyzed through SPSS and simple bar graphs were constructed.
- Participant feedback was qualitatively assessed for themes related to participant perception of effects of increased sleep duration.

### Literature Review

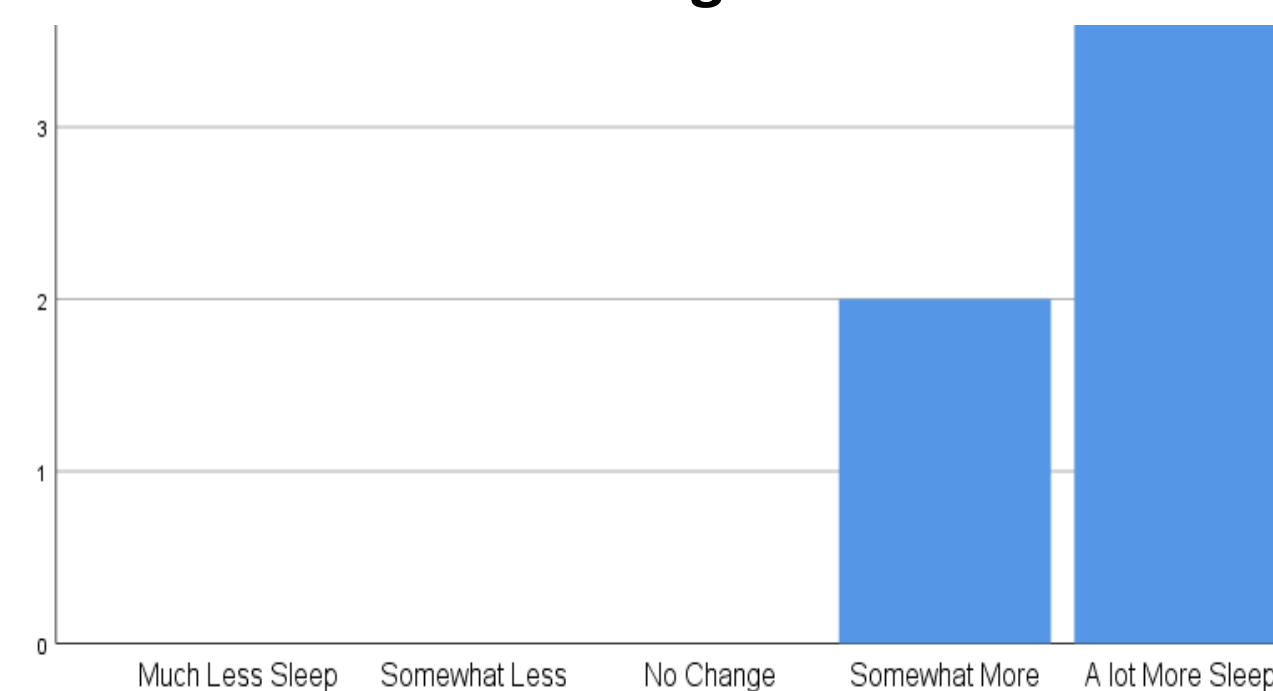
- The review was conducted from February to March 2019 with search engine Google Scholar.
- Keywords: Adolescent sleep, sleep health, sleep health education brochure, sleep hygiene.

## RESULTS

Figure 1. Consort Diagram of Participant Flow

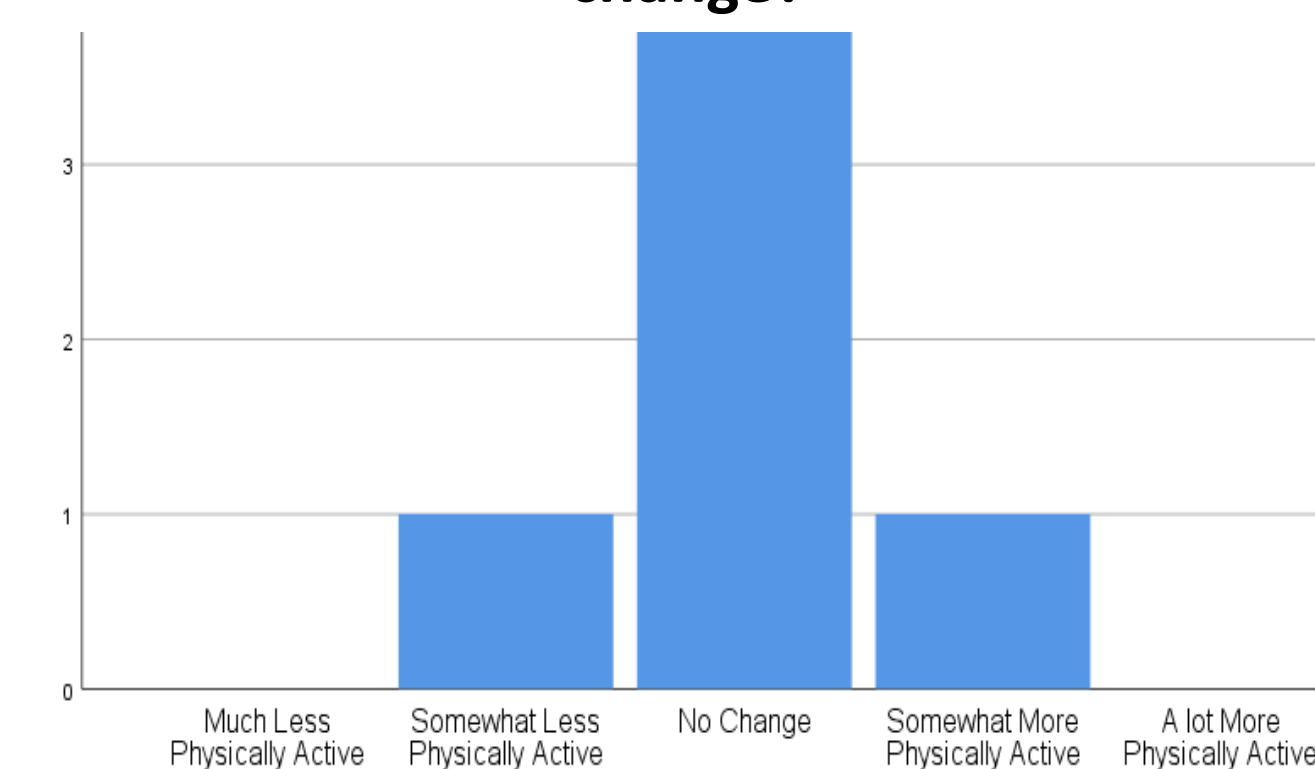


### How much did your actual amount of sleep change?



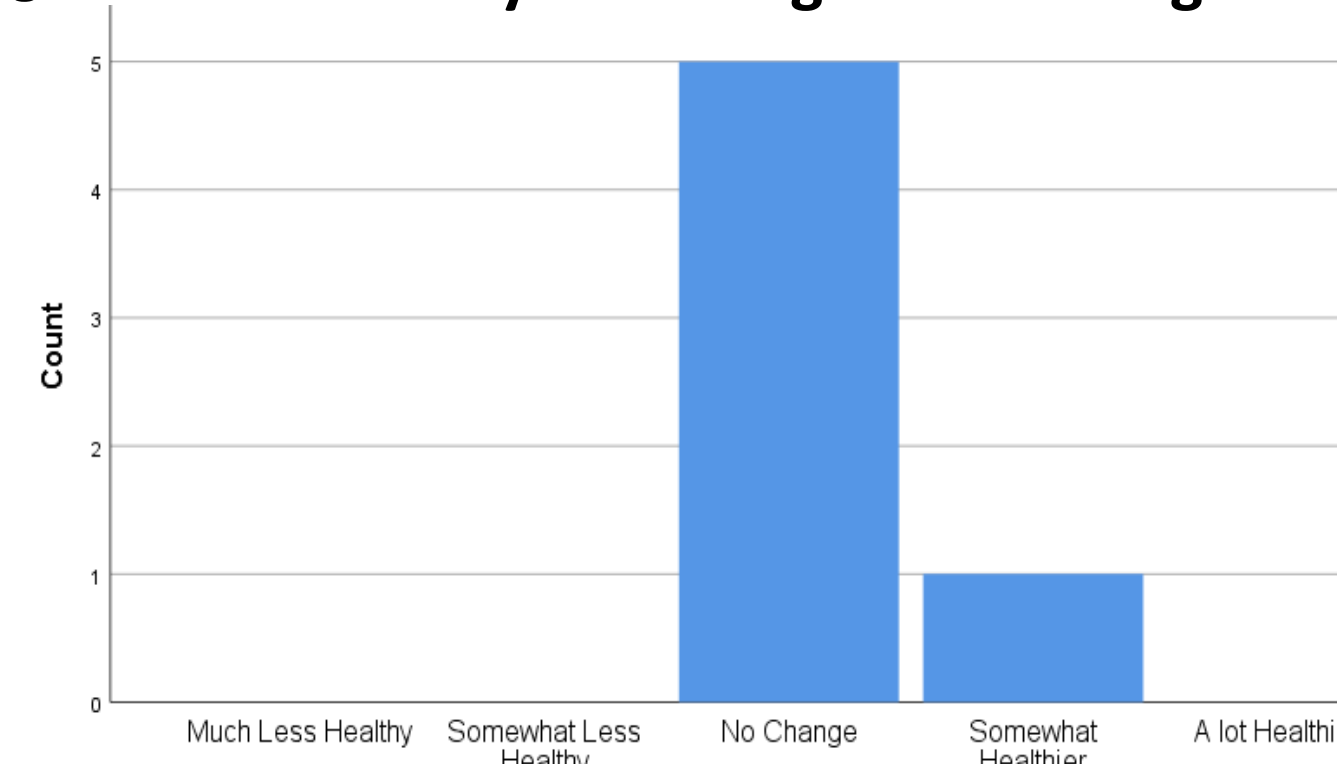
"I actually started waking up before my alarms"  
"I felt more rested after a couple of days"

### How did your level of physical activity change?



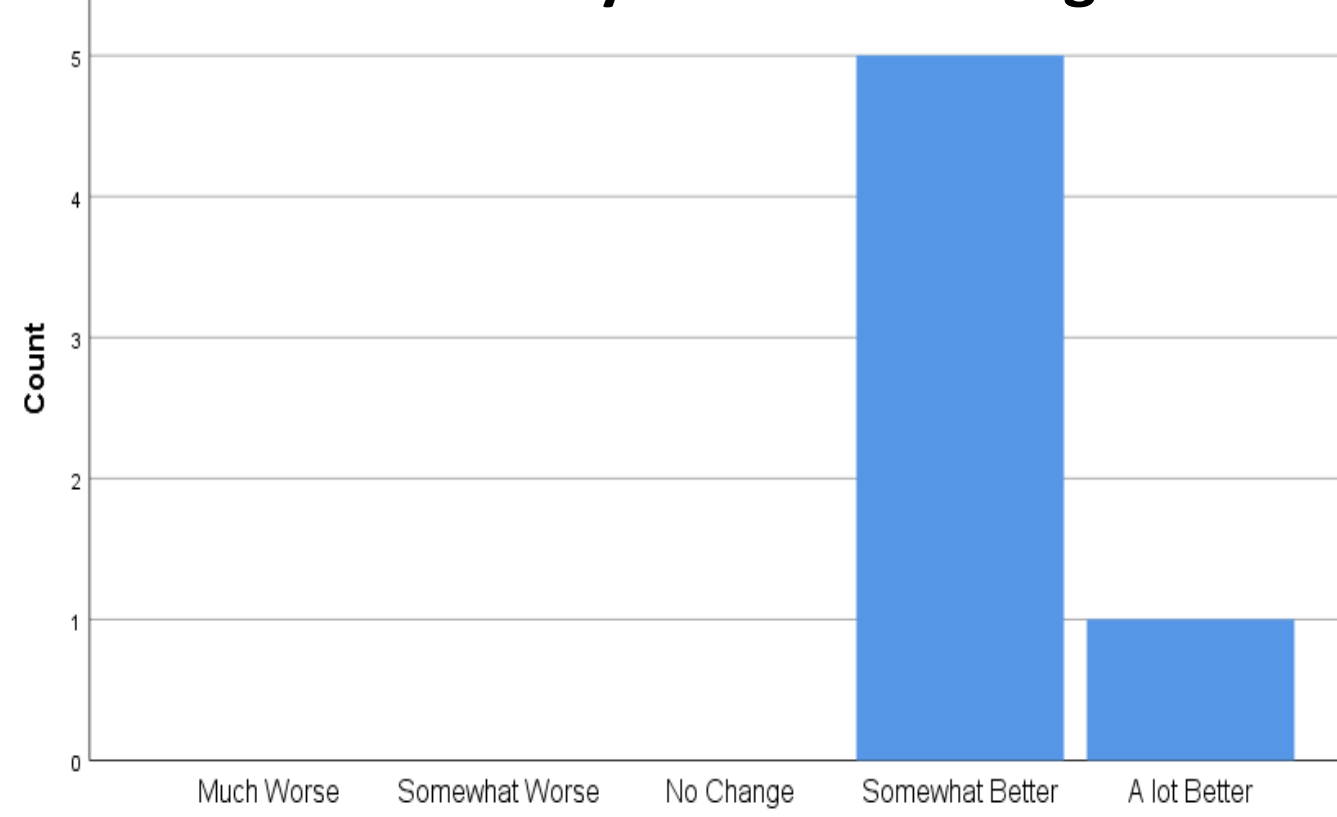
"I felt much more energetic than usual. I did not have the need to nap on the bus home."

### How did your eating habits change?



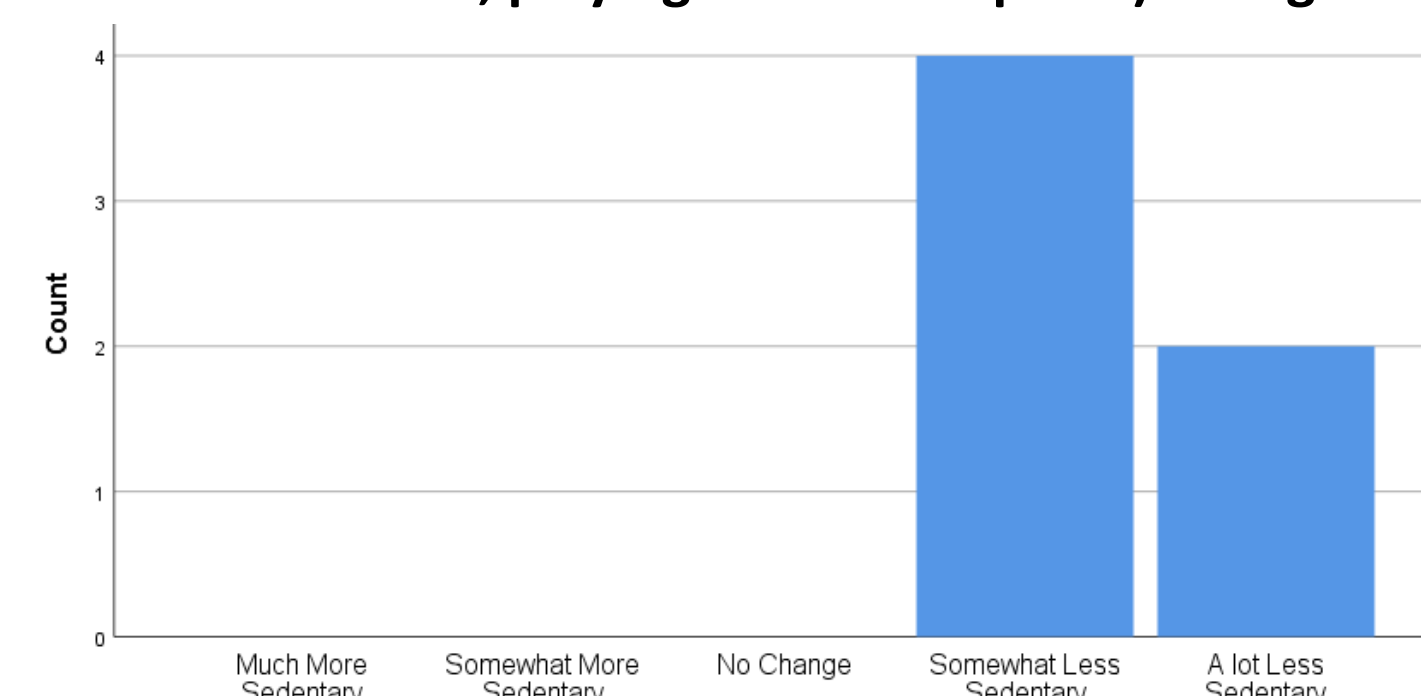
"I felt more inclined to be healthy."

### How did your mood change?



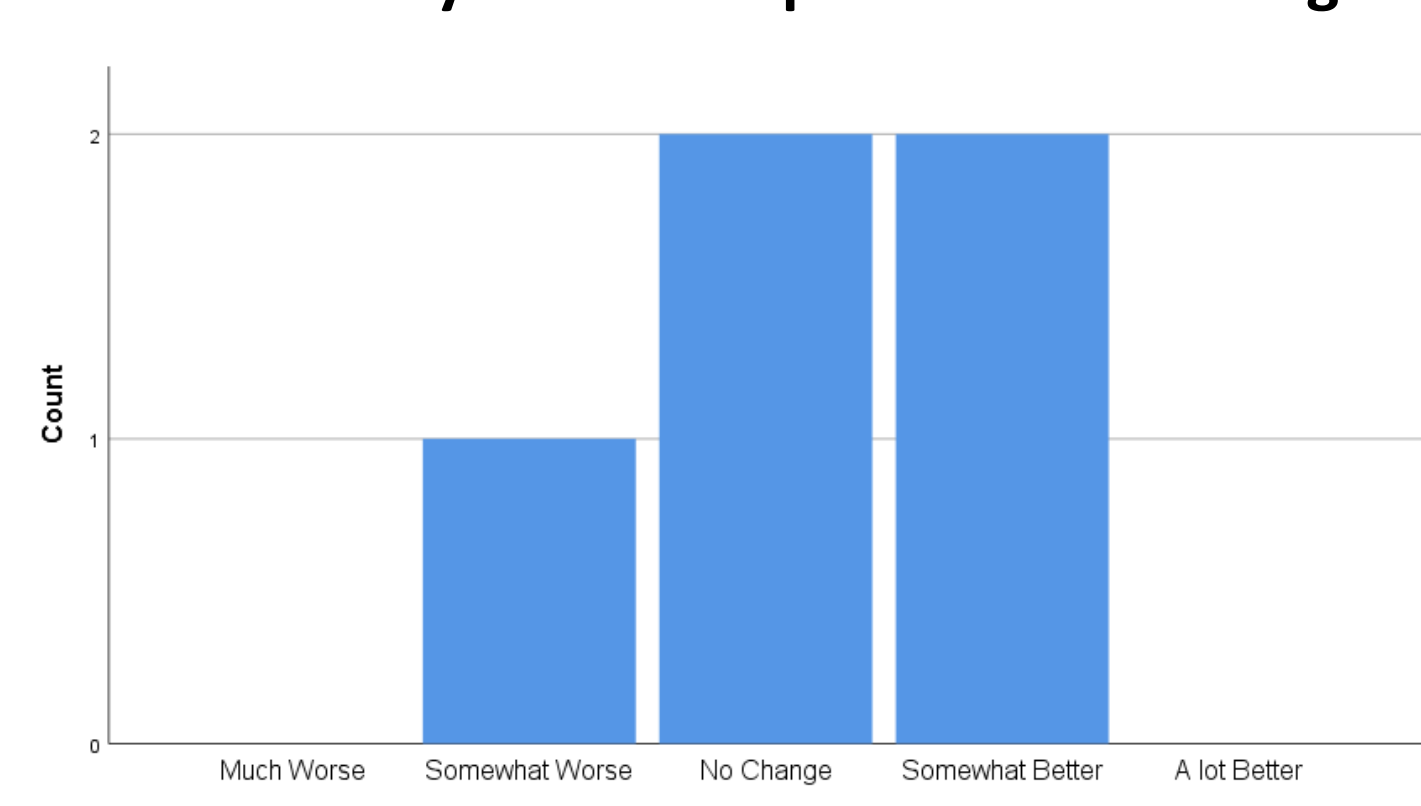
"I do think that obtaining enough sleep is important for your health because it's a key factor to how you feel every day and also affects your mood depending on if you slept less or more."  
"I felt less groggy and more awake during daytime."

### How did your level of sedentary activity (e.g. watching television, playing on the computer) change?



"I liked that it gave me a specific time that I was supposed to be in bed so that I didn't have a floating time where I would stay up on my phone or would watch TV."

### How did your school performance change?

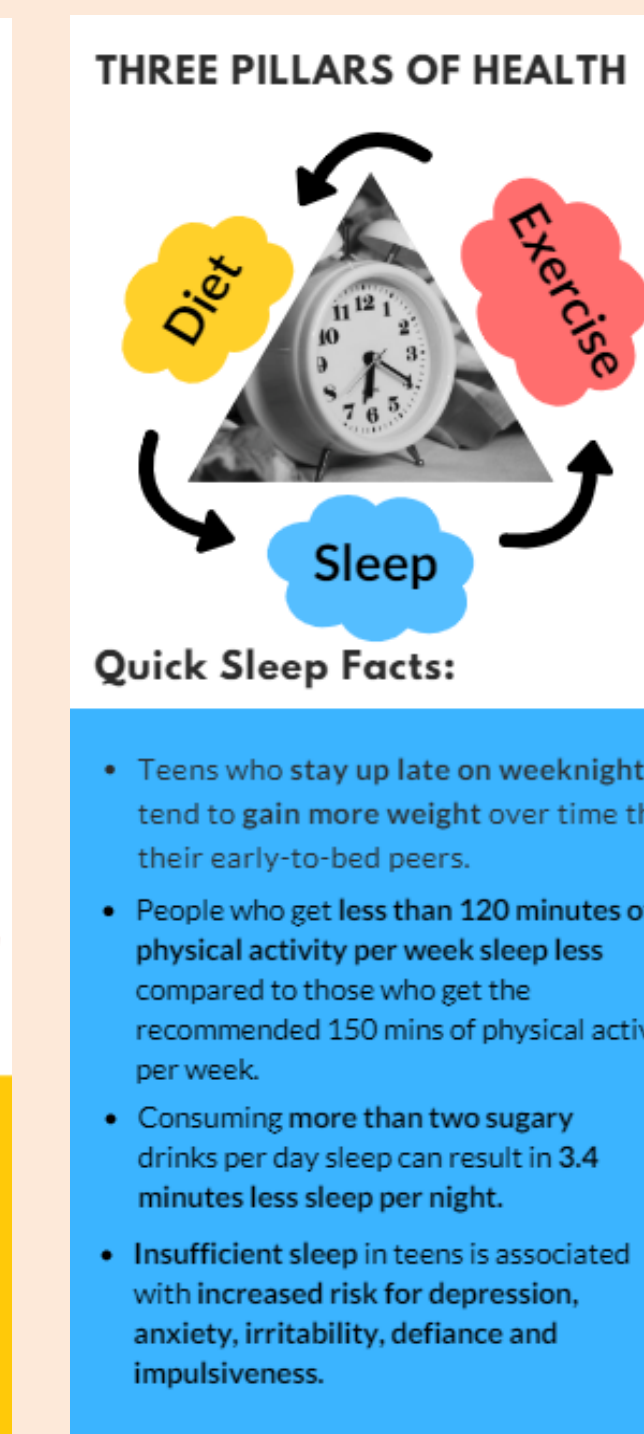
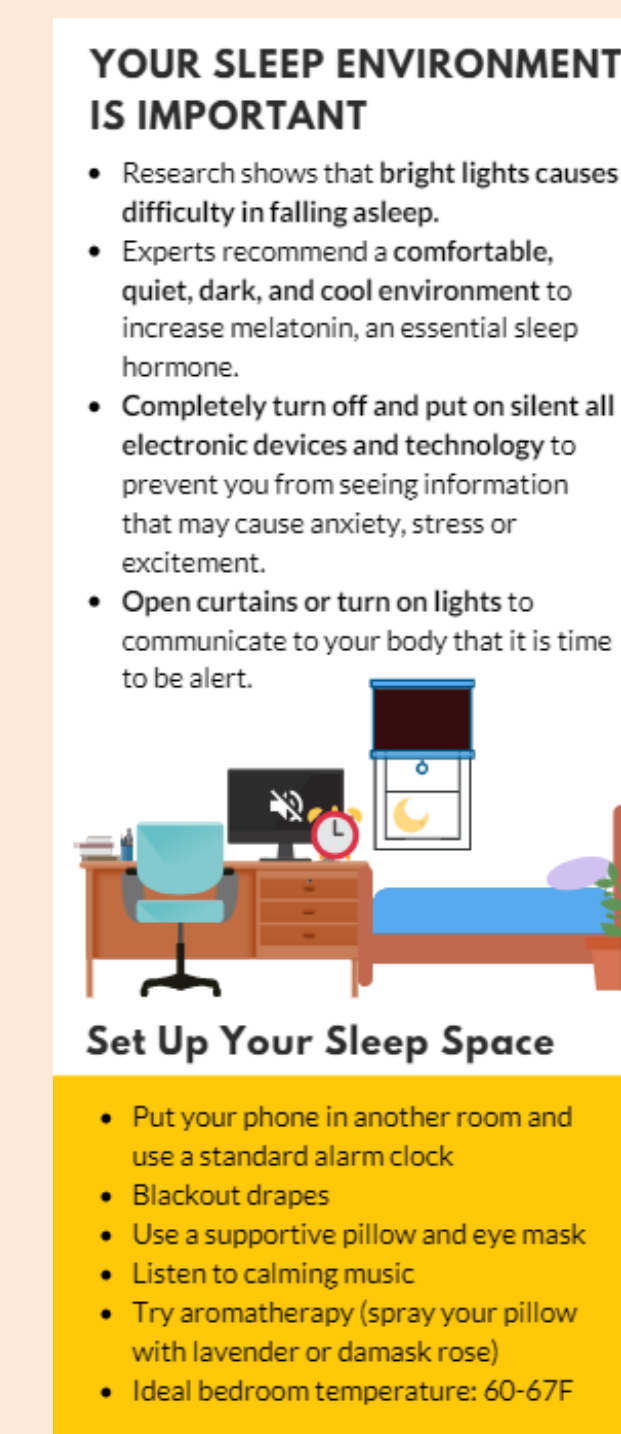


"Getting enough sleep and also a lot less procrastinating. I felt a lot more energetic and enthusiastic throughout the week."

"I feel like I got a lot accomplished since I had more time in the morning, and I was not trying to stay in bed like usual."

## FUTURE DIRECTIONS

- A comprehensive brochure may be useful in sleep studies or sleep interventions aimed in improving sleep duration and understanding sleep variables.
- Quality of sleep is dependent on sleep environment, consistency, and food and beverage consumption.
- Alternative methods for improving sleep are cost-efficient and convenient.
- Future studies should test the effectiveness of this brochure to evaluate the tips that yield the most amount of sustained behavior change.



## REFERENCES

1. Blake, M.J., Sheeber, L.B., Youssef, G.J., Raniti, M.B., & Allen, N.B. (2017). Systematic review and meta-analysis of adolescent cognitive-behavioral sleep interventions. *Clinical Child and Family Psychology Review*, 20(3), 227-249. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/28331991>
2. Yazdi, Z., Jalilolghadr, S., & Tootoonchian, F. (2018). Effect of a Sleep Hygiene Education Program on Sleep Problems in Female Nurses on Shift Work. *Journal of Sleep Sciences*, 2(1-2), 28-33. Retrieved from <http://jss.tums.ac.ir/index.php/jss/article/view/49>
3. Wing YK, Chan NY, Man Yu MW, et al. A school-based sleep education program for adolescents: a cluster randomized trial. *Pediatrics*. 2015;135(3):e635-643.
4. Zhang M, Tillman D, An S. Global prevalence of sleep deprivation in students and heavy media use. *Vol* 222015.
5. Zupanec S, Jones H, McRae L, Papaconstantinou E, Weston J, Stremmler R. A Sleep Hygiene and Relaxation Intervention for Children With Acute Lymphoblastic Leukemia: A Pilot Randomized Controlled Trial. *Cancer nursing*. 2017;40(6):488-496.

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