

# SLEEP STUDY EFFECTS ON SLEEP QUALITY AND MENTAL HEALTH

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## Introduction

- Poor sleep hygiene and mental health issues are common amongst college students due to high stress and rigorous environments.
- During the intervention, participants had a phone application which provided helpful suggestions (“nudges”) and reminders to help initiate healthier sleep hygiene, and improve related mental health conditions, such as depression, anxiety, and stress.
- Hypothesis: **Due to the intervention, the DASS and PSQI scores will decrease between the baseline and debriefing surveys.**

## Participants

- **N= 34**
- **18-24 years old**
- Exclusion criteria:
  - ❖ No diagnosed sleep disorder
  - ❖ Android phone users only
  - ❖ Wake times vary by 2 hours within a week
- 3 participants were excluded due to phone-application incompatibility and no post-survey data (dropped out of the study).

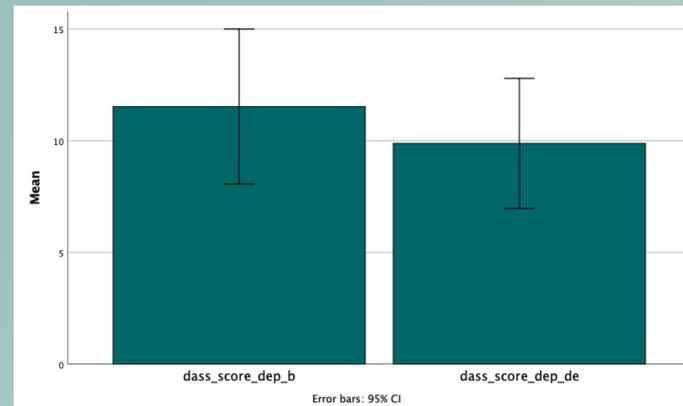
## Methods

- We used the Depression Anxiety Stress Scale (DASS) and the Pittsburgh Sleep Quality Index (PSQI) to assess improvements in sleep quality and mental health after exposure to the developed sleep intervention.
  - ❖ Healthy sleep quality is indicated by a low score on the PSQI self-report scoring chart.
  - ❖ Low stress, anxiety, and depression are indicated by a low score on the DASS measurement.
- Baseline survey (DASS/ PSQI part 1) self report
  - ❖ Session 1 / 2
- Debrief survey (DASS/ PSQI part 2) self report
  - ❖ Session 2 / 2
- Longitudinal study
  - ❖ Duration: 5 Weeks
- Data collected from within the context of a larger intervention study

## Conclusions

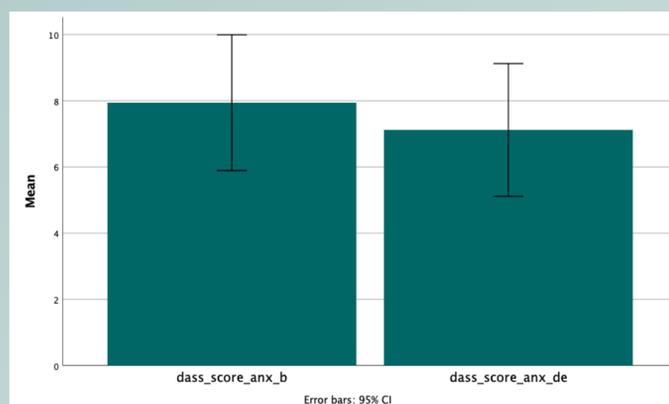
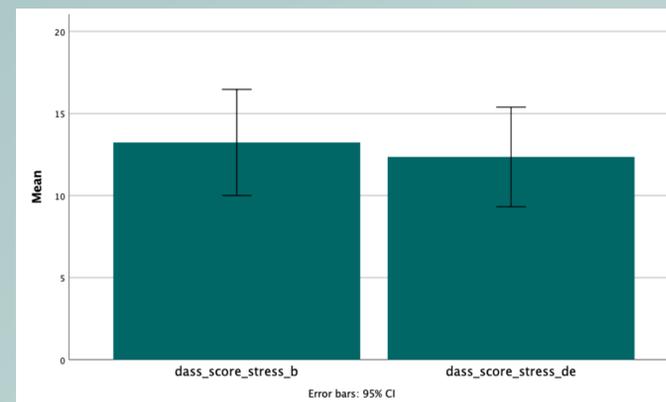
- DASS scores did not significantly decrease between the two self-report assessments.
- PSQI scores significantly increased through the intervention.
  - ❖ This indicates a decrease in sleep quality from the beginning to the end of the intervention.

## Results



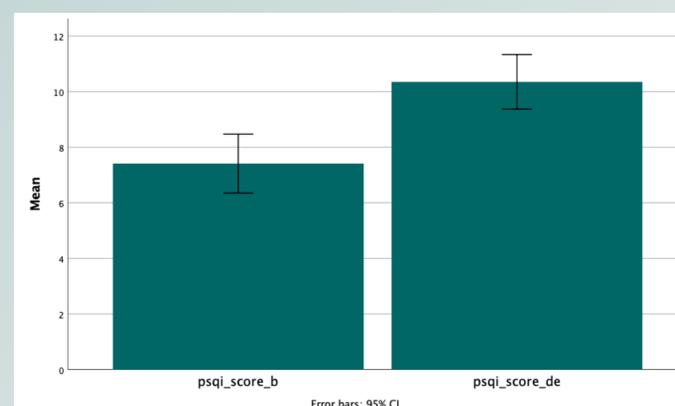
**Figure 1.** Change in depression scores from first to last assessment.

**Figure 2.** Change in stress scores from first to last assessment.



**Figure 3.** Change in anxiety scores from first to last assessment.

**Figure 4.** Change in poor sleep quality from first to last assessment.



## Limitations

- Timing of the intervention
  - ❖ Consent / first sessions occurred between weeks 3 and 5 of the term
  - ❖ Debrief / final sessions occurred between weeks 8 and 10 of the term
    - With different participants reporting scores at different times, there is a wider variation of scores falling under the DASS and PSQI surveys.
  - ❖ The last sessions during which participants received the DASS and PSQI surveys are in times of high demand for academic output, and therefore a drastic decrease in sleep quality and duration might have resulted.
- Short duration
  - ❖ Mental health did improve, but not significantly.
  - ❖ A longer study might have more of an impact on mental health due to:
    - Factors such as anxiety, depression, and stress would decrease if participants had higher quality sleep.
    - A longer intervention could show a higher significance level in differences in DASS scores.
    - The sleep patterns could be more robust than the intervention could have impacted.
- No control group
  - ❖ Everyone received the phone application, nudges, and reminders.
  - ❖ DASS scores might have gotten worse in a control group.
- Small sample size

## Future Directions

- Replicate the study with a longer longitudinal intervention
  - ❖ Take more frequent measurements.
  - ❖ Do chunks of timing for intervention in various times throughout the terms.
- Control for timing
  - Have every participant come in during the same weeks of the term for baseline and debrief assessments.

## References

- Augner, C. 2011. Associations of subjective sleep quality with depression score, anxiety, physical symptoms and sleep onset latency in students. *Central European Journal of Public Health*, 19(2), 115–117. DOI: 10.21101/cejph.a3647.
- Markarian, S. A., Pickett, S. M., Deveson, D. F., Kanona, B. B. 2013. A model of BIS/BAS sensitivity, emotion regulation difficulties, and depression, anxiety, and stress symptoms in relation to sleep quality. *Science Direct*, 210(1), 281-286. <https://doi.org/10.1016/j.psychres.2013.06.004>