



An Online Insomnia Treatment for Heavy Drinkers: Preliminary Evidence and Future Directions



Justin J. Verlinden¹, Mairead E. Moloney², Olga A. Vsevolozhskaya³, Lee M. Ritterband⁴,
Fiona Winkel¹, and Jessica Weafer¹

¹Department of Psychology, University of Kentucky, University of Kentucky; ²Department of Sociology, University of Kentucky; ³Department of Biostatistics, University of Kentucky; ⁴Department of Psychiatry and Neurobehavioral Sciences, University of Virginia

INTRODUCTION

- Poor sleep is a known risk factor for alcohol use disorder (AUD) and may serve as a novel treatment target.
- Cognitive behavioral therapy for insomnia (CBT-I) is the first-line treatment for insomnia¹ and has shown promise in improving sleep and alcohol-related problems in non-treatment seeking heavy drinkers².
- Online CBT-I is a promising and more accessible alternative. Sleep Healthy Using the Internet (SHUTi) is a highly effective online CBT-I program^{3,4,5} but has yet to be utilized in the context of heavy drinkers.
- Here we investigated whether the SHUTi program would lead to improvements in sleep and drinking outcomes in a sample of heavy drinkers with insomnia.
- We hypothesized that the SHUTi program would result in significant improvements in sleep and drinking outcomes relative to a control program.

METHODS

Procedure: Heavy drinkers with insomnia who consented to participating in the study were randomly assigned to either the 9-week SHUTi program or a control program. Self-report data on drinking and sleep habits were collected at baseline, post-intervention, 3-months post-intervention, and 6-months post-intervention.

SHUTi Condition (9-weeks):

- Complete 6 interactive sleep cores (30-45 minutes) containing fundamental components of CBT-I
- Daily sleep diaries to track progress
- Individualized tips and feedback

Control Condition (9-weeks):

- Webpage containing tips to improve sleep
- No sleep diaries, individualization, or interactive components

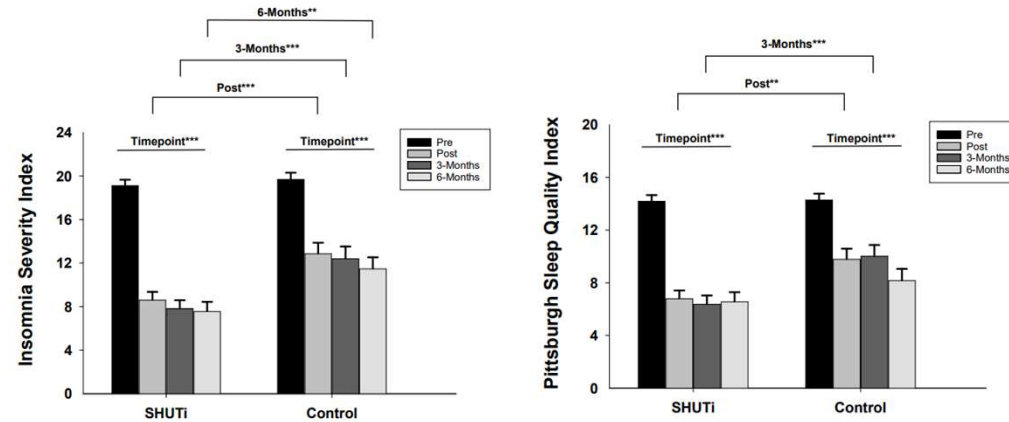
Measures:

- Insomnia Severity Index (ISI).** 7-item self-report measure that assesses the severity of one's insomnia symptoms.
- Pittsburgh Sleep Quality Index (PSQI).** 19-item self-report measure that provides a general index of sleep quality and sleep disturbances.
- Timeline Follow-Back (TLFB).** Assesses total number of drinks, total number of drinking days, and total number of binge episodes in the past 30 days

SAMPLE CHARACTERISTICS

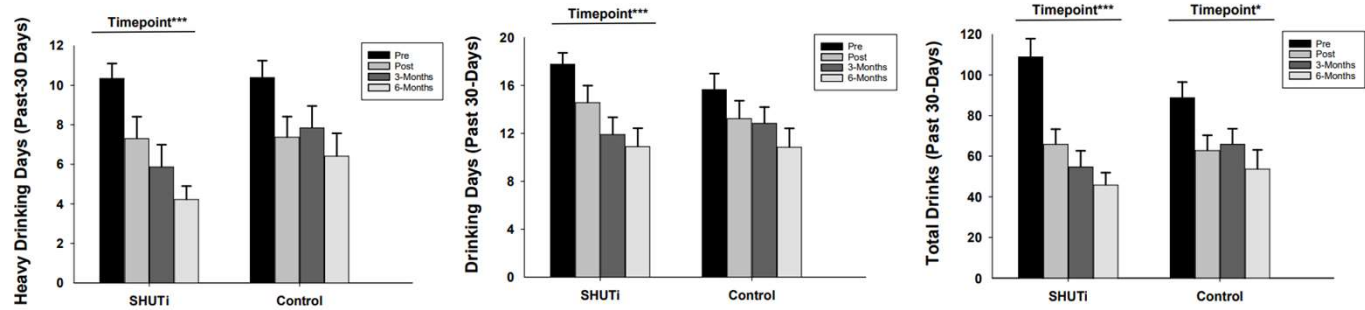
Mean (s.d.)	SHUTi (n=40)	Controls (n=30)	Contrasts
Sex (M/F)	16/24	12/18	ns
Age	26.1 (6.1)	24.3 (3.5)	ns
Education (years)	15.6 (1.5)	15.5 (2.1)	ns
ISI	19.1 (3.3)	19.7 (3.0)	ns
PSQI	14.2 (2.9)	14.3 (2.6)	ns
AUDIT	17.7 (5.6)	18.0 (7.5)	ns
TLFB (30 days)			
Total Drinks	108.8 (57.1)	88.9 (42.0)	ns
Drinking days	17.8 (6.0)	15.7 (7.2)	ns
Binge days	10.4 (4.8)	10.4 (4.6)	ns

EFFECTS OF SHUTi ON SLEEP



Linear mixed effects models showed significant condition x timepoint interactions for the ISI ($p = 0.019$) and trend level effects for the PSQI ($p = 0.06$) such that those in the SHUTi condition showed significantly greater improvements in sleep over time relative to controls. Between-groups t-tests showed the SHUTi group reported significantly lower ISI and PSQI scores at the first two follow-ups ($ps < 0.01$) but only significantly lower ISI scores at the final follow-up ($p < 0.01$).

EFFECTS OF SHUTi ON DRINKING



Linear mixed effects models showed significant condition x timepoint interactions for Total Drinks and Drinking Days ($ps < 0.05$) and trend level effects for Heavy Drinking Days ($p = 0.053$) such that those in the SHUTi condition showed significantly greater reductions in drinking over time relative to controls. This is evidenced by main effects of timepoint in the SHUTi condition for all drinking measures ($ps < 0.001$) whereas only Total Drinks was significant in the Control condition ($p = 0.047$).

CONCLUSIONS

- Those in the SHUTi condition displayed significantly greater improvements in sleep and drinking outcomes relative to controls.
- These results suggest that sleep could serve as a novel treatment target which may help slow down or prevent the progression to severe AUD.
- Future studies containing objective measures of drinking and sleep as well as larger samples will be necessary to address possible differences in age, sex, and drinking severity.
- Presently, we are conducting a follow-up where we hope to not only replicate but extend these findings.

REFERENCES & GRANT SUPPORT

- Siebert A, Manber R (2011) New developments in cognitive behavioral therapy as the first-line treatment of insomnia. *Psychol Res Behav Manag* 4:21-28.
- Miller MB, Deroche CB, Freeman LK, Park CJ, Hall NA, Sahota PK, McCrae, CS (2021) Cognitive behavioral therapy for insomnia among young adults who are actively drinking: A randomized pilot trial. *Sleep* 44(2):1-11.
- Moloney ME, Martinez AI, Badour CL, Moga DC (2020b) Internet-based cognitive behavioral therapy for insomnia in Appalachian women: A pilot study. *Behav Sleep Med* 18(5):680-689.
- Ritterband LM, Thorndike FP, Ingersoll KS, Lord HR, Gonder-Frederick L, Frederick C, Quigg MS, Cohn WF, Morin CM (2017) Effect of a web-based cognitive behavior therapy for insomnia intervention with 1-year follow-up. *JAMA Psychiatry* 74(1):68-75.
- Vedaa Ø, Kallestad H, Scott J, Smith OR, Pallesen S, Morken G, Langsrud K, Thorndike FP, Ritterband LM, Harvey AG, Stiles T, Sivertsen B (2020) Effects of digital cognitive behavioural therapy for insomnia on insomnia severity: A large-scale randomised controlled trial. *Lancet Digit Health* 2(8):397-406.

Research supported by University of Kentucky Substance Use Priority Research Area (SUPRA) Pilot Award Funds, T32 AA027488, R21 AA029201 (MPis JW and MM) and R01 AA028503 (JW).