

Examining the Effects of E-mail Delivered Cognitive Behavioral Therapy on Sleep Outcomes in College Students

Terrika C. Pereira, BSN-s; Alexander Salinas, BSN-s; MyLan Le, FNP-BC, DNP; Yu-Ping Chang, PhD, RN, FGSA
School of Nursing, State University of New York at Buffalo

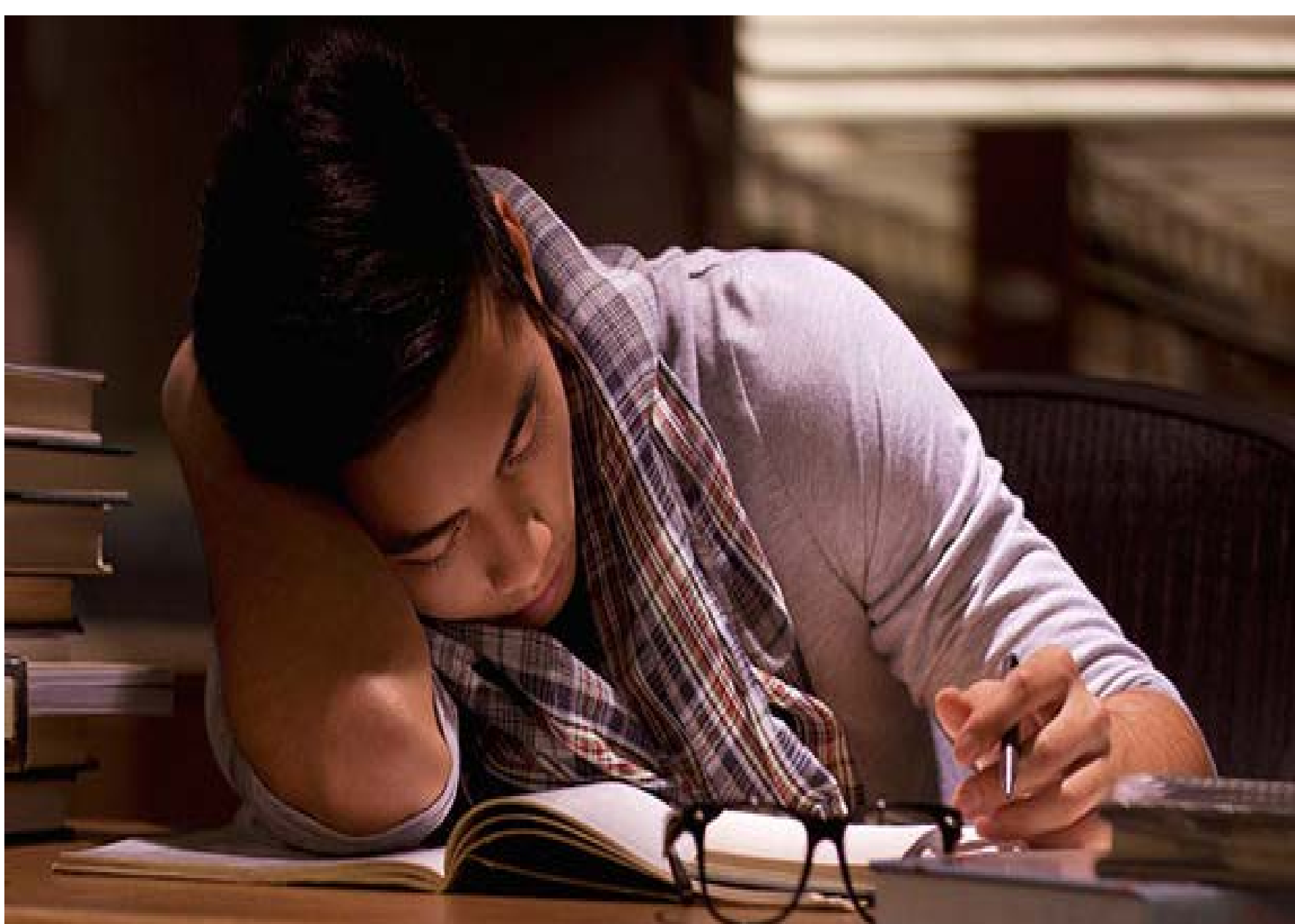


Introduction

- Prevalence of daytime sleepiness, sleep deprivation, and irregular sleep are high among college students, as 50% of college students report daytime sleepiness, and 70% attain insufficient sleep (Hershner & Chervin, 2014).
- Sleepiness and sleep deprivation can have a detrimental effect on college students, with impacts on learning and memory, impaired mood, increased risk of motor vehicle accidents, and increased risk of academic failure (Hershner & Chervin, 2014).
- Cognitive Behavioral Therapy for Insomnia (CBT-I) has been established as an effective non-pharmacological treatment for adults with insomnia and is based on changing sleep-related behaviors and thoughts through patient education

Purpose

- The purpose of this ongoing project is to examine the effectiveness of a six week modified e-mail delivered version of CBT-I on knowledge of sleep, sleep quality, daytime sleepiness, sleep hygiene practice, and alcohol use in college students.



CBT-I Intervention

Intervention Group - will receive 6 weekly e-mail delivered CBT-I educational sessions on the following:

- **Stimulus Control**
- **Sleep Restriction**
- **Sleep Hygiene**
- **Relaxation Training**
- **Cognitive Restructuring**
- **Relapse Prevention**

Control group: directed to UB Health Services sleep website

Methods

- **Inclusion Criteria:** College students aged 18 – 24; full time students; score of 7+ on ISI.
- **Exclusion Criteria:** taking prescription meds for sleep/psychiatric disorder; diagnosis/symptoms of another sleep related disorder; significant psychiatric condition
- **Tools for Screening and Outcome Measures:** Insomnia Severity Index (ISI), 16-Item Dysfunctional Beliefs and Attitudes about Sleep (DBAS), Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS), Sleep Hygiene Index (SHI), Demographic Questionnaire and Alcohol Use Disorders Identification Test (AUDIT)
- **Timeline:** These will be administered at baseline, six weeks after baseline (as primary post-test), and at after four weeks (as second post-test) to evaluate efficacy and sustainability of the intervention
- **Analysis:** Descriptive Statistics, Paired t-test, Independent t-test

Results

Table 1 Demographic Characteristics of Sample (N = 44)

| | | Frequency | Percent (%) |
|--------------------|------------------|---------------|-------------|
| Assignment | Intervention | 27 | 61.4% |
| | Control | 17 | 38.6% |
| Gender | Male | 16 | 36.4% |
| | Female | 28 | 63.6% |
| Race | Caucasian | 7 | 15.9% |
| | Asian | 26 | 59.1% |
| | AA/Black | 6 | 13.6% |
| | Hispanic | 3 | 6.8% |
| | Other | 2 | 4.5% |
| College Year | Freshman | 2 | 4.5% |
| | Sophomore | 9 | 20.5% |
| | Junior | 10 | 22.7% |
| | Senior | 14 | 31.8% |
| | Graduate Student | 9 | 20.5% |
| Living Environment | House | 14 | 31.8% |
| | Apartment | 21 | 47.7% |
| | Dorm | 9 | 20.5% |
| Occupation | Yes | 20 | 45.5% |
| | No | 24 | 54.5% |
| Alcohol Use | Yes | 28 | 63.6% |
| | No | 16 | 36.4% |
| Age | Mean (±SD) | 20.86 (±1.64) | |
| | Range | 18-25 | |

Table 2 Paired t-test Results Comparison Between Pre- and Post- Test in Intervention group (N= 27)

| Variables | Test | Mean | SD | 95% CI | | t | Sig (2-tailed) |
|-----------|------|--------------|-------|--------|-------|-------|----------------|
| | | | | Low | High | | |
| DBAS-16 | Pre | 97.39 | 20.29 | 6.38 | 23.14 | 3.619 | .001 |
| | Post | 82.63 | 23.13 | | | | |
| ESS | Pre | 11.44 | 4.43 | .94 | 5.16 | 3.421 | .002 |
| | Post | 8.22 | 5.67 | | | | |
| SHI | Pre | 40.52 | 5.67 | 1.37 | 5.93 | 2.270 | .032 |
| | Post | 37.41 | 5.98 | | | | |
| AUDIT | Pre | 5.74 | 6.47 | 1.09 | 4.75 | 2.321 | .028 |
| | Post | 3.22 | 4.96 | | | | |
| PSQI | Pre | 10.85 | 3.21 | .88 | 5.37 | 4.037 | .000 |
| | Post | 7.30 | 2.64 | | | | |

Table 3A Average Sleep Outcomes at Six Weeks (N=44)

| Variables | Assignment | Mean | SD |
|-----------|--------------|--------------|-------|
| DBAS-16 | Intervention | 82.63 | 23.13 |
| | Control | 96.76 | 14.07 |
| ESS | Intervention | 8.22 | 4.43 |
| | Control | 10.53 | 4.11 |
| SHI | Intervention | 37.41 | 5.98 |
| | Control | 44.47 | 4.52 |
| AUDIT | Intervention | 3.22 | 4.96 |
| | Control | 3.71 | 5.29 |
| PSQI | Intervention | 7.30 | 2.64 |
| | Control | 10.53 | 3.79 |

Table 3B Independent t-test Results Comparison of Outcomes in Two Groups (N=44)

| Variables | t | Sig (2-tailed) | 95% CI | |
|-----------|--------|----------------|--------|-------|
| | | | Low | High |
| DBAS-16 | -2.264 | .029 | -26.74 | -1.54 |
| ESS | -1.728 | .091 | -5.00 | .387 |
| SHI | -4.174 | .000 | -10.48 | -3.65 |
| AUDIT | -.307 | .760 | -3.66 | 2.69 |
| PSQI | -3.08 | .005 | -5.39 | -1.07 |

Discussion

- Preliminary findings indicate that participants in the intervention group showed statistically significant improvement on sleep outcomes.
- Also, they demonstrated more positive attitudes toward sleep, better sleep quality, and better sleep hygiene, compared to the control group at 6 weeks.

Conclusions and Implications

Our findings suggest that email-delivered CBT-I might have the ability to improve sleep outcomes in college students. An e-mail delivered intervention is a simple, feasible, and cost-effective tool that clinicians can use to promote healthy sleep in college students.

References

Available on request

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