



Examining the Relationship between Adequate Sleep, Sleep Behaviors, and Psychological Distress in College Students

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Background

- Healthy People 2020 Goals: (1) Increase awareness and knowledge of adequate sleep and (2) improve mental health through prevention.¹
- According to the National Sleep Foundation, adequate sleep for young adults (18 to 25 years) and adults (26 to 64 years) is defined as seven to nine hours of sleep per night.²
- More than half (63.6%) of U.S. Adults sleep less than seven hours of sleep per night.³
- **Sleep hygiene** is a group of behaviors that promote well-rested and consistent sleep.⁴
 - Adequate sleep hygiene also promotes quality sleep and daytime alertness.⁵
- **Poor sleep quality** is correlated with suicidality, violence, depression, anxiety, risky sexual behavior, increased drug and alcohol use, decreased academic success, decreased immune system function and early mortality.^{6,7}
 - Almost half (43.7%) of young adults have unintentionally fallen asleep at least once in a one month period.⁸
- **Psychological distress** may manifest in an array of symptoms including depression, anxiety, personality traits, functional disabilities and behavioral problems.
 - Factors known to correlate with higher distress and less total sleep include:
 - Poor sleep quality^{9,10}
 - Exercise^{11,12}
 - Caffeine^{13,14}
 - Alcohol use^{7,15,16}
 - Lower grade point averages (GPA) in students who have poor sleep¹⁷

Statement of Purpose

The purpose of this project was to examine the relationship between adequate sleep, sleep mediating behaviors, and psychological distress in college students. Measures used to assess sleep included hours per night, time to fall asleep, bed time, wake time, and self-reported sleep quality. Sleep mediating behaviors included drug/alcohol use for sleep, caffeine use, and exercise. GPA was also assessed as a possible indicator of academic distress.

Methods

- Institutional Review Board approval from Wright State University.
- A total of 767 client records from Counseling and Wellness Services at Wright State University were examined using a retrospective chart review. (see Table 1)
- Retrospective chart review using ANOVA and Bonferroni correction to determine statistically significant relationships, $p < 0.05$.

Table 1. Data Sources for Chart Review using CCAPS and SDS

| Instrument | Assessed |
|--|--|
| Counseling Center Assessment of Psychological Symptoms (CCAPS) | Psychological Distress |
| Standardized Data Set (SDS) | Total hours of sleep Quality of sleep (self-reported) Bed time Time to fall asleep Wake time Exercise Caffeine use Drug/Alcohol use |

Results

- Table 2 describes the distribution of sleep measures (n=767).
- Half (51%) of students sampled reported poor sleep quality.
- Three fourths of students presenting to Wright State's Counseling and Wellness Services reported moderate (32.6%) to high (41.5%) levels of psychological distress.
- Table 3 indicates which sleep measures and sleep behaviors demonstrated a relationship with both severity of distress and number of total sleep hours.
- Figures 1 and 2 are pictures of students exhibiting sleep deprivation issues (taken and used with permission).

Table 2. Distribution of Sleep Measures

| Characteristics | Values | Percent |
|--|------------------------------|---------|
| Sleep Quality | Very Bad | 13.7% |
| | Fairly Bad | 37.4% |
| | Fairly Good | 40.5% |
| | Very Good | 8.4% |
| Bedtime | 3pm-9:30pm | 3.7% |
| | 10pm-11:30pm | 28.0% |
| | 12am-3am | 63.0% |
| | 3:30am-12pm | 5.3% |
| Wake Time | 2am-6:30am | 20.3% |
| | 7am-10am | 69.7% |
| | 10:30am-12pm | 10.0% |
| Time to Fall Asleep | 0-10 minutes | 18.5% |
| | 11-30 minutes | 39.7% |
| | 31-60 minutes | 26.3% |
| | Over 60 minutes | 15.6% |
| Total Hours of Sleep | Below 7 hours | 58.5% |
| | Above 9 hours | 3.1% |
| Frequency of drug or alcohol use to help sleep | 0 times | 70.3% |
| | Less than once per week | 12.0% |
| | Once or twice per week | 7.9% |
| Exercise | Three or more times per week | 9.8% |
| | None | 41.6% |
| | Current | 47.8% |
| Caffeine | Previous | 10.6% |
| | None | 36.3% |
| | Current | 60.2% |
| Grade Point Average | Previous | 3.5% |
| | Below 2.0 | 7.2% |
| | 2.0-2.49 | 12.2% |
| | 2.5-2.99 | 20.5% |
| | 3.0-3.49 | 26.4% |
| Distress Levels | 3.5 and above | 33.6% |
| | Low Distress | 25.9% |
| | Moderate Distress | 32.6% |
| | High Distress | 41.5% |



Figure 1. Students sleeping in class.



Figure 2. Students having trouble staying awake in class.

Table 3. Relationship between Predictors, Overall Distress, and Total Hours of Sleep.

| Predictors | Associated with Increased Distress? | Associated with Fewer Hours of Sleep? |
|---------------------------------------|-------------------------------------|---------------------------------------|
| Fewer hours of sleep | Yes | N/A |
| Increased Distress level | N/A | Yes |
| Poor Sleep Quality | Yes | Yes |
| Later Bed Time | Yes | Yes |
| Earlier Wake Time | No | Yes |
| Longer Time to Fall Asleep | Yes | Yes |
| Frequent Alcohol/Drugs to Fall Asleep | Yes | Yes |
| Lack of Exercise | Yes | No |
| Caffeine Consumption | Yes | Yes |
| Grade Point Average | No | No |

Discussion

- Increased distress and fewer hours of sleep were found in students with:
 - Poorer sleep quality
 - Later bedtime
 - Longer time to fall asleep
 - Use of alcohol/drugs to fall asleep
 - Caffeine consumption
- Increased distress was found in those who did not exercise regularly.
- Those with fewer hours of sleep had earlier wake times.
- ANOVA analysis was able to identify a relationship but not a linear causality.

Conclusion

- Understanding how sleep hygiene can help decrease the likelihood of distress is an important consideration when working with students.
- This study may help people working with distressed college students target modifiable factors and behaviors that can be targeted to reduce distress and build resilience.

Future Directions

- Identifying individual factors (social, family, academic, etc.) contributing to psychological distress may help improve sleep.
- College and university counseling centers should consider developing educational materials about sleep hygiene for college students, i.e., informational pamphlets/brochures, web-based information, informational session during first-year experience and promotional items during campus outreach events.

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