

Sleep in College Students

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Bio:

Daniel J. Taylor received his doctorate in clinical psychology from the University of Memphis in 2003. He completed an internship at Brown Medical School in 2003 and a postdoctoral fellowship in behavioral sleep medicine at the University of Texas Southwestern Medical Center in 2004. He has been an assistant professor in the clinical health psychology program at the University of North Texas since 2004. He is board-certified in both sleep medicine and *behavioral* sleep medicine. He has received Young Investigator Awards from the William C. Dement Research Apprenticeship (2005) and the World Federation of Sleep Research Societies (2003). He has 19 peer-reviewed publications in major journals within the psychology and sleep medicine fields, and has authored 5 chapters and 1 book. His research focuses on the epidemiology of sleep and cognitive-behavioral therapy of insomnia co-morbid with other disorders (e.g., depression, sleep apnea). Dr. Taylor is currently mentoring six undergraduate research students in his sleep laboratory, all of whom are members of the Honors College. Dr. Taylor has given his undergraduate students extraordinary professional opportunities by facilitating presentation of their research at national professional meetings and including them as authors of publications to which they have contributed.

Abstract:

In his keynote address to the 5th Annual University Scholars Day, Dr. Daniel J. Taylor presented the preliminary results from two of his recently completed studies in the Sleep Lab in the Department of Psychology at the University of North Texas. The first study was a cross-sectional epidemiological study examining sleep and insomnia among college students. The results of this study revealed that 75% of students were getting enough sleep but 15% reported having chronic insomnia and 11% reported having “short” nights in which they slept less than 4 hours. Most students reported sleeping more on the weekends than during the week. The second study was a treatment study where college students with chronic insomnia were randomly assigned to receive cognitive-behavioral therapy for insomnia or wait-list control. Cognitive-behavioral therapy was found to be effective in increasing the average number of hours spent sleeping and the average percentage of the total time in bed that the students were asleep.

Introduction

Behavioral sleep medicine is a branch of sleep medicine and health psychology that focuses on a) the identification of the psychological factors that contribute to the development and/or maintenance of sleep disorders, and b) developing and providing empirically validated cognitive, behavioral, and/or other nonpharmacologic interventions for the entire spectrum of sleep disorders. The Sleep and Health Research Laboratory at the University of North Texas research focuses on the epidemiology of sleep and cognitive-behavioral therapy of insomnia comorbid with other disorders (e.g., depression, sleep apnea). Many think of insomnia as a symptom of other disorders. Mounting research is beginning to show that insomnia is often a primary illness; when left untreated it is a risk factor for the development of many other difficulties including anxiety, depression, substance and alcohol abuse/dependence, and even cardiovascular illness (Taylor, Lichstein, & Durrence, 2003). Even when insomnia starts out secondary to another disorder, if it is left untreated it sometimes becomes a separate disorder, which is treatable and can result in gains in the primary disorder (Stepanski & Rybarczyk, 2006; Taylor, Lichstein, Weinstock, Sanford, & Temple, 2007).

What follows are preliminary analyses from two recently completed studies where we are still cleaning and analyzing results. The first is a cross-sectional epidemiological study examining sleep and insomnia among college students. The second is a treatment study where college students with chronic insomnia were randomly assigned to receive cognitive-behavioral therapy for insomnia or wait-list control.

Sleep and Insomnia in College Students: An Epidemiological Study

We know very little about the sleep habits of college students. One group of studies on college students measured the average number of hours of sleep a night from 1969 to 1989

(Hawkins & Shaw, 1992; Hicks, Mistry, Lucero, & Lee, 1989; Hicks & Pellegrini, 1991). These studies found that the average number of hours of sleep declined from 7.75 hours in 1969 to 6.74 hours in 1989. Researchers say young adult students in this age-group should be getting 9–9.24 hours of sleep a night, so you can see it is possible these students are being chronically sleep-deprived. Another study found that 4.2% of college students reported having insomnia and 1% reported using sleep medication (Buboltz, Brown, & Soper, 2001). In a general adult population, about 15% of people report suffering from chronic insomnia (Ohayon, 2002).

Methods

We conducted an epidemiological study in Fall 2006 and Spring 2007 semesters using psychology students only. We offered extra credit for creating a booklet of questionnaires and information. We delivered the survey via the Web by converting the questionnaire into an Adobe® .pdf document that could easily be downloaded and printed. The students then completed the questionnaire and returned it to us.

We had 1,106 students in our study, 74% of whom were female. In terms of ethnicity, 64% were Caucasian, 13% were African American, 10% were Hispanic or Latino, 6% Asian American, 1% Native American, and 6% were “Other,” which closely matches the ethnicity of the undergraduate population at UNT.

Results

We first examined the average estimated total sleep time to compare to those results from researchers who found that total sleep time had been decreasing in this population since the late 1960s. We found that during the weekday, the students reported getting a median of 7.7 hours of sleep a night, with 75% sleeping between 6.6 and 8.6 hours a night, making this the “normal” range of sleep for this age-group. This is an important fact, because a lot of propaganda exists

telling people they “need” 8 hours of sleep, but this is just untrue. Just as we all have different shoe sizes, so too we all have different needs for sleep. As long as people are not having significant consequences of the duration of their schedule and they do not have to compensate with stimulants, then they are likely getting the amount of sleep *their* body needs.

However, on the weekends, student reported a median of 8.6 hours of sleep a night, with 75% reporting sleeping between 7.5 and 9.7 hours a night. From these data, it appears that the students may be making up for sleep deprivation during the week by sleeping longer on the weekends.

In addition, many of our students reported “short nights,” or nights that they are in bed for less than 4 hours of sleep. Eleven percent reported 1 short night in terms of time in bed over the course of a week, 2% reported 2 nights, and 1% reported 3 nights. When the actual reported time spent sleeping was examined, not just time in bed, the rates increased; 16% reported 1 short night per week, 5% reported 2 short nights, 1% reported 3 short nights, and 1% reported 4 short nights. The consequences of these short nights have yet to be explored. However, another 16% of the students reported falling asleep while driving and 2% reported having had a wreck because of sleepiness. Some of this is likely a consequence of the short sleep, but this was not assessed in the current study.

In terms of specific sleep disorders, 15% of the students in our sample reported having chronic insomnia, which is comparable to the general adult population. Our definition of insomnia was taking more than 30 minutes to fall asleep at least 3 nights a week or waking up in the middle of the night and not being able to go back to sleep. Another 10% report having symptoms of transient insomnia, but have these symptoms less than 3 nights a week or having

had them for less than 6 months. This represents 25% of our college population having significant *symptoms* of insomnia.

Given the large percentage of the college population with insomnia, one might ask, are they seeking treatment? Eleven percent of the entire population said that they were taking medication for their insomnia and 8% reported that they used alcohol to help them get to sleep. These are substantial numbers, especially when you consider the chronic nature of insomnia and the potential for dependence on alcohol and sleep medications. Sleep medications are generally only recommended for use for 2 weeks; there is one that has some data for 6 months but generally most trials only last 2–4 weeks. We do not really know the long-term consequences of sleep medication, yet these students have already started taking them.

We compared the students with insomnia with the students who did not have insomnia and found that those with insomnia had significantly more dysfunctional beliefs about sleep than those without insomnia, were more likely to have experienced stressful life events, had higher levels of perceived stress, and were more likely to be depressed (all $ps < .05$). When compared with people without insomnia, people with insomnia were significantly ($p < .05$) more likely to report symptoms of somatization, obsessive-compulsive behavior, interpersonal sensitivity, depression, anxiety, hostility, phobic behavior, and psychoticism.

Students with insomnia were also significantly more likely to use health care services. Insomniacs were significantly more likely to have had a visit to the emergency room ($p = .057$), a visit with a mental health provider ($p = .015$), and a hospitalization ($p = .006$).

Conclusions of Epidemiology Study

In conclusion, the average college student gets an appropriate amount of sleep. Some are getting very little sleep (less than 4 hours a night) a few nights a week. Students appear to be

playing catch-up on the weekends, indicating a degree of chronic sleep deprivation during the week. Fifteen percent of college students complained of insomnia, which is very close to the rates seen in the general population. People with insomnia have worse scores on the measures of dysfunctional beliefs about sleep, psychopathology, stress, social support, quality of life, and health care utilization. Clearly, insomnia is a significant problem in college students. The next question is how to treat it? There have been several treatment studies in the general population but no one has focused specifically on college students.

Cognitive-Behavior Therapy of Insomnia (CBTi) in College Students

As discussed earlier, insomnia is a significant problem in college students. Fifteen percent report having insomnia. Many are using medications and alcohol to treat insomnia, which could be habit-forming. No previous study has examined the effectiveness of CBTi with college students. Studies in adult populations have found that CBTi works better and longer than medications in treating insomnia (Smith et al., 2002).

We are just finishing up a study comparing CBTi to wait-list control (WLC) in a sample of college students at the University of North Texas. To date, we have data on 19 participants (CBTi $n = 9$; WLC $n = 10$) in the treatment and of control groups.

The preliminary results of our study indicate that our students are doing very well on the CBTi treatment. Over the 6 weeks of the study, the students' average total sleep time increased from about 7.25 hours a night to 8.5 hours. In the control group, the average total sleep time also increased but only from 7.5 to 7.75 hours. We also calculated the students' sleep efficiency by dividing the amount of time students were sleeping per night on average by the amount of time students reported being in bed. At the end of treatment students were asleep 95% of the time they were in bed where the WLC group was sleeping a smaller percentage of the time. It would be

hard to get much higher than 95%. To be higher, a person would have to fall asleep as soon as their head hit the pillow, get up as soon as he or she awakes, and not get up at all during the night. Finally, we evaluated participants' self-report of sleep quality on an 8-point scale. The treatment group's average score increased from 5.25 at the pretest to about 7.5 on the posttest, compared to an increase from 6.0 on the pretest to 6.5 on the posttest for the control group.

Conclusions of Treatment Study

These data demonstrate that insomnia in college students, which we found to be so prevalent in our previous studies, is highly treatable with methods such as cognitive-behavioral therapy, which has only shown effectiveness in older adults up to this point. This is particularly important in the college demographic because, as mentioned earlier, insomnia tends to be a chronic disease that is a risk factor for several more serious diseases such as depression, anxiety disorders, and substance abuse. In addition, to date no medications for insomnia have been approved for use over 6 months; however, none of these medications are considered a long-term "cure" for insomnia and are only useful for symptom management for as long as the person takes the medication. When one evaluates the use of these medications in this manner, then it becomes clear that these individuals will be using these medications for far longer than 6 months, and there is no literature examining what the long-term consequences of such use entails.

Future Directions

Future research of this lab will focus on extending what has already been learned by (a) continuing to examine the relationship between sleep variables (e.g., insomnia, sleep schedule, etc.) and subsequent outcomes (e.g., academic performance, health care utilization, psychopathology), and (b) develop and more widely disseminate effective interventions for these sleep problems.

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