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Clinical and Program Note

Sleep Patterns of College Students at a Public University

LeAnne M. Forquer, PhD; Adrian E. Camden, BS; Krista M. Gabriau, BS; C. Merle Johnson, PhD

Abstract. **Objective**: The authors' purpose in this study was to determine the sleep patterns of college students to identify problem areas and potential solutions. **Participants**: A total of 313 students returned completed surveys. **Methods**: A sleep survey was e-mailed to a random sample of students at a North Central university. Questions included individual sleep patterns, problems, and possible influencing factors. **Results**: Most students reported later bedtimes and rise times on weekends than they did on weekdays. More than 33% of the students took longer than 30 minutes to fall asleep, and 43% woke more than once nightly. More than 33% reported being tired during the day. The authors found no differences between freshmen, sophomores, juniors, seniors, and graduate students for time to fall asleep, number of night wakings, or total time slept each night. **Conclusions**: Many students have sleep problems that may interfere with daily performance, such as driving and academics. Circadian rhythm management, sleep hygiene, and white noise could ameliorate sleep difficulties.

Keywords: college students, night wakings, sleep, sleep aids, sleep deprivation

Adolescents and young adults, including college students, appear to be one of the most sleep-deprived groups in the United States.[1–3] Individuals in this age group require about 9 hours of sleep each night; however, most receive only 7 to 8 hours.[1] This sleep deprivation can have detrimental effects on performance, including driving[4] and academics.[5] According to Carskadon,[1] 55% of sleep-related accidents involve individuals younger than 25 years. In a survey by the American College Health Association[5] involving students from 33 universities across the United States, researchers examined the top impediments to academic performance. Both men (23%) and women (25%) rated sleep difficulties as the third most common impediment, after stress and illness such as colds, flu, or sore throats. In this study we examined college students' sleep patterns to identify problem areas and potential solutions.

At the time of the study, all authors were with the Department of Psychology at Central Michigan University in Mount Pleasant.

METHODS

Participants

Graduate and undergraduate students from a North Central university participated in an e-mail survey. We randomly selected these students from the approximately 20,000 currently enrolled. The Dean of Students approved the release of their university-issued e-mail addresses by the Registrar's office. The university's institutional review board approved this project.

Measures

To identify students' potential problem areas and factors influencing these problems, we conducted a sleep survey that included questions from the Pittsburgh Sleep Quality Index[6] and the Sleep Hygiene Test.[7]

Procedure

We attached the survey to an e-mail that explained the study's purpose. We sent this e-mail to the university-issued e-mail addresses of students randomly selected to participate. All information was confidential; only a number identified participants. Students who decided to participate were instructed to complete the attached survey and return it via e-mail or campus mail. We sent all participants a reminder 2 weeks later with another copy of the survey. We conducted the study during the beginning of the spring semester, when sleep deprivation should be lowest.

RESULTS

We e-mailed surveys to 2,024 students; 44 of the surveys could not be delivered and 241 were completed. We e-mailed a second survey 2 weeks later, and this time 43

could not be delivered and 72 more were completed. A total of 313 students returned completed surveys, although 23 more surveys were returned without attachments. The sample of participating students was 62% female, 90% Caucasian, 93% unmarried, and 87% undergraduate; their mean age was 21.4 years (*SD* = 4.3). Most participants (90%) had roommates, including spouses (7%). Demographics were representative of the university.

The survey asked the students about their typical sleep patterns (see Table 1). When asked about their typical sleeping situation, most participants reported sleeping with roommates, although in separate beds. Bedtimes on weekends were more than 1 hour later and rise times were more than 2 hours later; thus, most participants slept more on weekend nights (*M* = 8.6 hours, *SD* = 1.5) than they did on weekdays (*M* = 7.2 hours, *SD* = 1.2). Furthermore, women averaged 8 hours of sleep compared with 7.7 for men ($F[1, 312] = 5.27$, $p < .01$). Participants took an average of 25 minutes to fall asleep (*SD* = 20). An analysis of variance showed that women averaged 27.3 minutes to fall asleep, compared with 21.2 for men ($F[1, 312] = 6.93$, $p < .01$). We observed no sex differences in the number of night wakings (*M* = 1.7, *SD* = 1), nor any class differences (freshmen through graduate students) in the number of night wakings, time to fall asleep, or hours of nightly sleep. The most common reasons for night wakings included hearing noise from others (41%), going to the bathroom (40%), and being worried about something (33%).

When asked what a typical night's sleep consisted of, most participants answered that they slept all night (26%), had 1 waking (26%), or had 2–3 wakings (21%). The participants were also asked about sleep aids; half reported using sounds such as fans or music. Less common sleep aids included medication (6%). When asked how they felt during waking hours, 58% of participants reported being tired in the morning but okay once they got going. However, more than 33% reported that they started out energetic and then got tired or were tired all day.

TABLE 1. Participants' Sleep Patterns

Pattern	Value
Typical sleeping situation (%)	
Roommate in different room	41
Share a room	31
Share a bed	16
Alone	12
Mean bedtime (AM)	
Weekday	12:24
Weekend	1:54
Mean rise time (AM)	
Weekday	8:12
Weekend	10:30
Why do you awaken during the night? (Check all that apply)	
Noise from others	41
Need to go to bathroom	40
Worried about something	33
Bad dreams	20
Pain	9
Muscle spasms	7
Do you typically use sound to help you sleep? (%)	
Yes	47
No	53
If yes, what type of sound do you use? (%)	
Fan	55
Music	34
Humidifier	22
Television	8
Sound machine	3
Do you use any other aids to help you sleep? (%)	
Yes	10
No	90
If yes, what aids do you use? (%)	
Medication	60
Reading	13
Relaxation exercises	13
Earplugs	7
Alcohol	3

Note. The standard deviations for mean bedtimes and mean rise times are as follows: bedtime, *SD* = 1.4 and *SD* = 1.6, respectively, weekday and weekend; rise time, *SD* = 1.4 and *SD* = 2.0, respectively, weekday and weekend.

COMMENT

College students reported later bedtimes and wake times on weekends than on weekdays. Of the participants, 33% took more than 30 minutes to fall asleep and 43% woke more than once a night. These data suggest sleep difficulties consistent with research of the National Sleep Foundation,[8] which reported that more than 40% of Americans have difficulty falling asleep or have night wakings.

Our results support American College Health Association[5] survey findings on college students' sleep difficulties, including long sleep latencies, short sleep time, and frequent night waking. Sleep problems may be worse than these self-reported responses, as students may give socially desirable answers such as not noting sexual encounters or alcohol abuse before bedtime. Thus, this survey may be limited by underreporting.

Improving sleep may enhance academic performance. Possible strategies include circadian rhythm management, sleep hygiene, and white noise.[1,9,10] The circadian rhythm is the 24-hour day–night cycle that influences quantity and quality of sleep.[9] The more stable and consistent this circadian rhythm, the better a person sleeps. This implies that individuals should go to bed and wake at the same time every day, including on weekends.[10] Clearly, students in this sample disrupted circadian rhythms when weekday sleep is compared with weekend sleep. Improvements in sleep hygiene—including limiting naps to less than 1 hour, using beds only for sleeping (no reading, TV, or homework), and making sure the bedroom is comfortable[9,10]—also promote sleep. White noise, which is continuous sound covering the entire range of human hearing from 20 to 20,000 Hertz (or approximations to white noise such as fans or humidifiers), also could improve sleep.[9,10] College students need

to address sleep problems with better sleep management, which may improve academic performance and driving.

NOTE

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