

Sleep habits, sleep quality, and perceived stress among college students

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ABSTRACT

To better understand sleep disturbance among college students, we administered the Pittsburgh Sleep Quality Index (PSQI), the Perceived Stress Scale (PSS), and a sleep habits checklist to 98 healthy college men and women. Of all sleep habits measured, only long naps were associated with decreased sleep quality [$F(1,97) = 2.38, p = .015$]. The ritual of showering before bed was associated with increased PSS scores [$t(1,97) = 2.57, p = .012$] but not related to the PSQI. Targets for enhancing sleep quality in the context of student lifestyles will be discussed.

INTRODUCTION

- Sleep disturbance is one of the most profound health issues among college students today (Jensen, 2003).
- Sleep patterns have relationships with perceived stress and sleep quality (Bulboltz et al. 2002; Jensen, 2003).
- Poor sleep quality results in decreased mood states and motor functioning among college students (Buboltz et al. 2002; Brown et al. 2002).
- Sleep habits such as noise, light, temperature, hunger, naps, sleep scheduling, medications, attitude, worry, and bed partners are related to sleep quality (Lacks and Rotert, 1985).
- A large majority of students suffering from non-chronic sleep difficulties show improvement through good sleep habits (Buboltz et al. 2002).

DEMOGRAPHICS

	<u>Mean</u>	<u>Median</u>	<u>SD</u>
Height	66.51	66	3.62
Weight	147.45	136	32.62
Age	19.49	19	1.65

	<u>Percentage</u>	<u>N</u>
<u>Gender</u>		
Male	36.30%	36
Female	63.70%	62
<u>Race</u>		
White	63.30%	61
Af. American	5.10%	5
Asian	24.50%	24
Hispanic	2.00%	2
Other	5.10%	5

SLEEP HABITS

Sleeping Conditions

With person	21% (N=21)
With person who snores	2% (N=2)
With music	24% (N=24)
Semi-lit room	27% (N=26)
With pet	7% (N=7)
With A/C	39% (N=38)
Uncomfortable mattress	20% (N=20)
With fan	20% (N=20)
With TV	23% (N=23)
Dark room	62% (N=61)

SLEEP HABITS

Pre-sleep Rituals

Eat	23% (N=23)
Bath/Shower	32% (N=31)
Meditate	2% (N=2)
Read	38% (N=37)
Sex	13% (N=13)
Worry	34% (N=33)
Housework	19% (N=19)
Alcohol	7% (N=7)
Pray	24% (N=24)
Talk to bed partner	20% (N=20)
Watch TV	60% (N=59)
Talk on phone	58% (N=57)
Job-related work	26% (N=25)

AIMS

To examine the relationship between sleep quality, perceived stress, and sleep habits/rituals among a college population

Sleep habits/rituals:

- Sleeping conditions
- Pre-sleep rituals (activities 30 minutes prior to bed)
- Napping

HYPOTHESES

- 1. Long nappers will have significantly higher PSQI scores (poorer sleep quality) compared to shorter nappers**
- 2. Sleep quality scores will be associated with sleeping conditions.**
 - Sleeping with a person who snores, music playing, semi-lit room, on an uncomfortable mattress, and sleeping with the tv on will be positively associated with the PSQI.
 - Sleeping with A/C on, with the fan running, and sleeping in a completely dark room will be negatively associated with the PSQI.
- 3. Sleep quality scores will be associated with pre-sleep rituals**
 - Worrying, drinking alcohol, and doing job-related work 30 minutes prior to bedtime will be positively associated with the PSQI.
 - Showering, meditating, reading, having sex, and praying will be negatively associated with the PSQI.
- 4. Perceived stress scores will be associated with sleeping conditions**
 - Sleeping with a person who snores, music playing, semi-lit room, on an uncomfortable mattress, and sleeping with the tv on will be positively associated with the PSS.
 - Sleeping with A/C on, with the fan running, and sleeping in a completely dark room will be negatively associated with the PSS.
- 5. Perceived stress scores will be associated with pre-sleep rituals**
 - Worrying, drinking alcohol, and doing job-related work 30 minutes prior to bedtime will be positively associated with the PSS.
 - Showering, meditating, reading, having sex, and praying will be negatively associated with the PSS.

METHOD

Measures

Pittsburgh Sleep Quality Index (PSQI)

Self-report form that allows the respondent to rate sleep quality on seven subscales; the form also generates a “global” sleep scale between 0 and 21 (Backhaus et al. 2002).

Perceived Stress Scale (PSS)

Short questionnaire in which students rate their current “degree in which situations in (one’s) life are perceived as stressful (Cohen et al. 1993).

Sleeping Habits Questionnaire

Self-report form that inquires about current sleeping conditions and pre-sleep rituals (activities performed 30 minutes prior to bedtime).

METHOD

Subjects

- 98 Drexel University undergraduate students were recruited from Psychology classes
- 18-25 years of age; Not previously diagnosed with mental illness

Procedure

- Subjects recruited October 4, 2004- March 1, 2005
- One hour session guided by a member of Drexel University Health Psychology Research Team
 - Subjects filled out a personal data sheet, the Pittsburgh Sleep Quality Index, and the Perceived Stress Scale (along with other measures from a parent project).

NAPPING

- 95% of our sample reported napping

<u>Length of Nap</u>	<u>Percentage</u>
< 60 minutes	25% (N=24)
> 60 minutes	70% (N=69)

Results (Hypothesis 1):

Long naps were significantly associated with increased PSQI scores -- meaning *poor* sleep quality.

	<u>Mean</u>	<u>df</u>	<u>t-test</u>	<u>p</u>
Sleep Quality (PSQI)				
> 60 minutes	13.92	(1,96)	3.21	**0.001

** Result is significant at the .01 level.

RESULTS

Hypothesis 2: PSQI scores will be associated with sleeping conditions (with another person, with person who snores, music on, semi-lit room, with pet, with A/C, on uncomfortable mattress, with fan, TV on, in dark room).

<u>Sleep Quality (PSQI)</u>	<u>Mean Scores</u>	<u>df</u>	<u>t-test</u>	<u>p</u>
Sleep with person	6.67	(1,96)	-1.04	Ns
Sleep with snorer	9.5	(1,96)	-2.03	Ns
Sleep with music on	6.25	(1,96)	-0.13	ns
Sleep in semi-lit room	6.15	(1,96)	0.1	ns
Sleep with pet	6.43	(1,96)	-0.27	ns
Sleep with A/C on	6.25	(1,96)	-0.23	ns
Sleep on uncomf. mattress	6.7	(1,96)	-1.08	ns
Sleep with fan on	6.8	(1,96)	-1.29	ns
Sleep with tv on	6	(1,96)	0.45	ns
Sleep in dark room	6.11	(1,96)	0.42	ns

RESULTS

Hypothesis 3: PSQI scores will be associated with pre-sleep rituals

(eating, showering, meditating, reading, having sex, worrying, housework, drinking alcohol, pray, talking to bed partner, watching tv, talk on phone, job-related work)

<u>Sleep Quality (PSQI)</u>	<u>Mean Scores</u>	<u>df</u>	<u>t-value</u>	<u>p</u>
Eat 1/2 hr before bed	5.91	(1,96)	0.65	ns
Bath/shower 1/2 hr before bed	6.23	(1,96)	-0.09	ns
Meditate 1/2 hr before bed	8	(1,96)	-1.09	ns
Read 1/2 hr before bed	6.49	(1,96)	-0.95	ns
Sex 1/2 hr before bed	6.92	(1,96)	-1.20	ns
Worry 1/2 hr before bed	6.67	(1,96)	-1.42	ns
Housework 1/2 hr before bed	6.26	(1,96)	-0.14	ns
Drink alcohol 1/2 hr before bed	5.71	(1,96)	0.58	ns
Pray 1/2 hr before bed	5.71	(1,96)	1.16	ns
Talk to bed partner 1/2 hr before bed	6.5	(1,96)	-0.65	ns
Watch tv 1/2 hr before bed	6.14	(1,96)	0.30	ns
Talk on phone 1/2 hr before bed	5.89	(1,96)	1.49	Ns
Job-related work 1/2 hr before bed	6.32	(1,96)	-0.31	Ns

RESULTS

Hypothesis 4: PSS scores will be associated with sleeping conditions
(with person, with snorer, music on, semi-lit room, with pet, with A/C, on uncomfortable mattress, with fan on, TV on, in dark room).

<u>Perceived Stress (PSS)</u>	<u>Mean</u>	<u>df</u>	<u>t-value</u>	<u>p</u>
Sleep with person	17.05	(1,96)	0.4	ns
Sleep with snorer	18	(1,96)	-1.66	ns
Sleep with music on	17.17	(1,96)	0.3	ns
Sleep in semi-lit room	16.46	(1,96)	1.177	ns
Sleep with pet	17.86	(1,96)	-0.239	ns
Sleep with A/C on	17.18	(1,96)	0.391	ns
Sleep on uncomf. mattress	18.25	(1,96)	-0.84	ns
Sleep with fan on	17.7	(1,96)	-0.277	ns
Sleep with tv on	17.35	(1,96)	0.129	ns
Sleep in dark room	17.98	(1,96)	-1.449	ns

RESULTS

Hypothesis 5: PSS scores will be associated with pre-sleep rituals (eating, showering, meditating, reading, having sex, worrying, housework, drinking alcohol, praying, talking to bed partner, watching tv, talking on the phone, job-related work).

<u>Perceived Stress (PSS)</u>	<u>Mean Scores</u>	<u>df</u>	<u>t-value</u>	<u>p</u>
Eat 1/2 hr before bed	17.04	(1,96)	0.429	ns
Bath/shower 1/2 hr before bed	15.61	(1,96)	2.568	*0.012
Meditate 1/2 hr before bed	15.5	(1,96)	0.561	ns
Read 1/2 hr before bed	18.32	(1,96)	-0.418	ns
Sex 1/2 hr before bed	18.85	(1,96)	-1.122	ns
Worry 1/2 hr before bed	17.79	(1,96)	-0.516	ns
Housework 1/2 hr before bed	17.63	(1,96)	-2	ns
Drink alcohol 1/2 hr before bed	18.57	(1,96)	-0.639	ns
Pray 1/2 hr before bed	16.83	(1,96)	0.683	ns
Talk to bed partner 1/2 hr before bed	16.45	(1,96)	1.002	ns
Watch tv 1/2 hr before bed	17.85	(1,96)	-1.042	ns
Talk on phone 1/2 hr before bed	17.32	(1,96)	0.268	ns
Job-related work 1/2 hr before bed	17.12	(1,96)	0.363	ns

* Results significant at the .05 level

DISCUSSION

- **Few hypotheses were supported in this study**
 - Possibly, college students have become accustomed to large amounts of stress and poor sleep quality, and have possibly learned to cope with these issues so that they do not compromise sleep
- **PSS scores were significantly associated with the pre-sleep ritual of showering before bed.**
 - Relaxing quality of taking a shower may reduce perceived stress.
- **College students that napped longer than 60 minutes during the day had worse sleep quality than students that napped less than 60 minutes or did not nap at all.**
 - In the general population, sleep quality is decreased when naps during the day last longer than approximately *20 minutes*. For college students, the cutoff for decreased sleep quality is *60 minutes*. Greater than 60 minutes of sleep may reduce the drive for sleep at nighttime.
 - Perhaps college students receive less sleep during the night than the general population (Jensen, 2003), and napping allows time to buffer the effects of sleep deprivation
 - Also, college students may nap so frequently that they become accustomed to this routine, therefore not affecting their sleep quality.
- **A limitation to this study could have been that mediating variables, such as coping strategies for stress, were not examined.**

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