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Sleepy Misperceptions of Sleep: The University Student Experience

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ABSTRACT

Sleep hygiene strategies are behaviors best described as behaviors connected to individual's sleep. Sleep health is essential and, if compromised, is associated with chronic illness. Health behaviors conducive to sleep such as commonly known sleep hygiene behaviors, - but practiced infrequently. Poor sleep quality resulting in sleep deprivation has increased worldwide. University students' unique lifestyle predisposes them to long hours of study, course attendance, lab work and the requisite relaxation time(s). University student lifestyles result in poor sleep quality and sleep deprivation. Slowed motor responses and attention/awareness/concentration decrements are commonly found in sleep deprived subjects. The current investigation examined the hypothesis of misperception of sleep-in terms recognizing the need for sleep hygiene intervention in university students. University student participants from a small midwestern university completed sleep hygiene questionnaires and one week of sleep logging. Statistically significant correlation (r=-.68x) were found between poor sleep efficiency and fragmented understanding of sleep hygiene and of practice of poor sleep hygiene (r =-.79). Implications for instructional sleep education at the university level is discussed within the context of these major findings.

Sleepy Misperception of Sleep: The University Student Experience

Sleep is essential for health. Several decades ago, the sleep researcher, Dr. Peter Hauri at Mayo Clinic proposed a list of "Sleep Hygiene Rules." This list became a common reference and a sole recommendation given as sleep medical advice and has been published in a myriad of popular/media periodicals as well. The list of behaviors (i.e., sleep hygiene) was aimed at decreasing disruptions to the normal balance of the sleep wake cycle. Behaviors such as excessive eating, alcohol use, nicotine use, excessive arousal through exercise and stress are to be minimized at pre-sleep due to the disruption of sleep quality. Added to this list was the straightforward statement of a regular wake-up time – that is a circadian rhythm preserving message (Appendix 1.). While meta-analysis in behavioral sleep medicine protocol do not identify the essential importance and contribution of sleep hygiene; the common use of recommending sleep hygiene is thought to be clinically predictive of chronic health conditions[1]. Further, poor sleep health is associated with negative mood[2]. Peach, Gaultney & Gregg identified an association between negative emotions of mental health and sleep in university students[3]. The association between negative mood is thought to be multidirectional as mood illicits emotional fatigue and emotional fatigue is often perceived as sleepiness[2,1]. Scott, Webb, Martin-St James, Rowse & Welsh report greater improvement in mental health can be obtained with the use of sleep hygiene[4]. Chow suggests the individual tailoring of sleep hygiene practices to the lifestyle and environmental factors of the sleeper[5]. In molecular biological dimensions, the individual's sleep hygiene treatment can be most effective when applied to an identified mood pathway of the individual. The individually designed sleep hygiene behaviors per sleeper technique is further refined with the orchestration of circadian rhythm of the student's sleep-wake cycle[6,7].

A differential sleep wake schedule for students, as impacted by their student and personal life schedules is well known[8,9]. The weekday or "school week" bedtimes and evening wake times are starkly contrasted to weekend bedtimes and wake times[9,1,1011]. University settings positively impart a readiness for sleep education component. However, the condition of being sleep deprived has been associated with decrements in cognitive (e.g., reduced awareness, perception, attention, concentration, recall of short-term memory) and motoric behavior (e.g., reaction times). Sleep education that is commonly recommended after a sleep disordered diagnosis or health planning after a medical diagnosis takes the form of sleep hygiene list. However, given the documented preponderance of university students being sleep deprived, it may be the case that information may not be retained as other cognitive information is compromised in sleep deprivation behaviors[12,13,1]. Indirectly, the sleep hygiene information in a format that is useful, retained and applied by the university student may be a probable solution[14,15]. The current study seeks to investigate the awareness and use of sleep hygiene by university students. It is hypothesized that sleep quality is impacted by the level of sleep hygiene used by the university students.

Method

Participants. Forty-seven undergraduate students at a small Midwestern university signed up for course credits in exchange for participation in the IRB approved/agreed study. Thirty-two participants completed the study protocol and received course credit.

Instruments. The Sleep Hygiene Index was administered following a standard sleep history interview. A one-week sleep log form requesting bedtime, wake time, number of minutes to fall asleep, nap time of day and amount, rating of sleep (1 = poor, 2 = adequate, 3 = good). Participants were given the choice to submit their sleep log data obtained using an app/watch/ tablet of sleep variables. Procedure. Each participant received a description of the study and were provided with an informed consent form to sign the following and questions were answered for each subject.

Each participant completed a standard sleep history form followed by the sleep Hygiene form which took approximately twenty minutes. Then, each participant received instruction on sleep logging and provided with a standard sleep log form to complete this task.

Results. All variables from the questionnaires were treated as separate variables and entered an excel sheet for analysis using SPSS. Sixty-eight percent of participants were female and 32% were males; ages ranged from 19 to 27 years with 22 years as the average age. Average sleep efficiency per day by gender is depicted in Figure 1. The correlational analysis depicted in Figure 2 reflects statistically significant.

Conclusions

The study hypothesis was supported with the statistically significant associations between sleep hygiene practices and sleep were found [correlation between indexed variables of fragmented sleep hygiene ($r=^{-}0.68^{*}$) and total score on the sleep hygiene scale ($r=^{-}0.79^{*}$).] While sleep quality improved across the intervention, the impact of sleep hygiene was slightly noted. Specifically, the amount of time expended and the level of awareness and the motivation to use sleep hygiene were not identified. The participants complied with the employment of sleep hygiene behaviors. Sleep hygiene behavior use and sleep quality relationships are represented in **(Figure 1 and Figure 2)**. The sample contained participants with sleep deprivation which makes it plausible that their executive functioning, their perception of the sleep being poor or of improving with sleep hygiene, may be compromised or misperceived. With extended time and more precise measurement of each participant's use of sleep hygiene in future studies, it is hoped that a deeper understanding of university sleep quality and the role of sleep hygiene will be hoped.

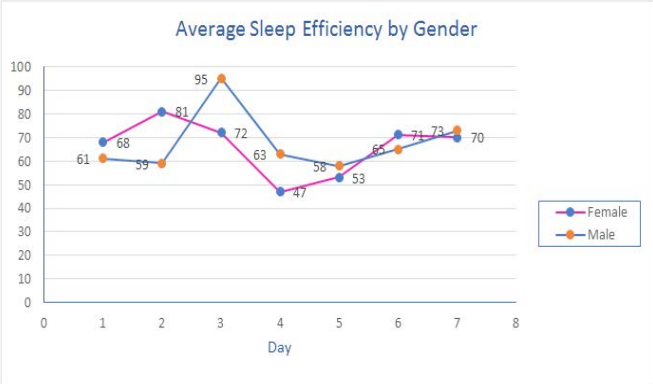

Figure 1: Average Sleep Efficiency[1] by Gender.

Figure Key

1 = sleep efficiency (total number of minutes sleeping/total number of minutes in bed) x 100

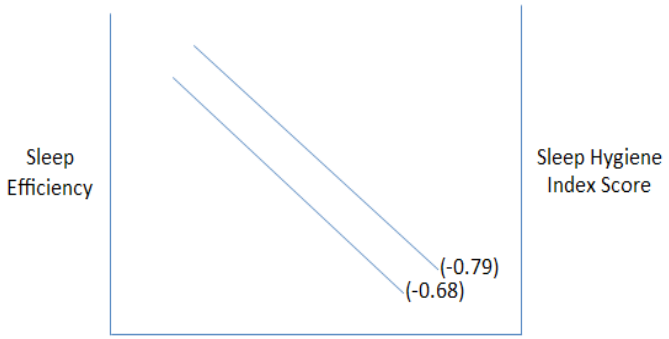

Figure 2: Correlational Analysis Findings of Sleep Hygiene Scale and Sleep Efficiencies.

Sleep Efficiency Overall and Sleep Efficiency Index Scale[1]

Sleep Efficiency Overall and Fragmented Sleep Hygiene[2]

[1]Analysis yielded no difference between genders on sleep efficiency ratings, measure was collapsed for full participant group value.

[2]Fragmented sleep hygiene was determined to be two or fewer common sleep hygiene practices/

The lessons learned from the research directly indicate the need to continue use of sleep hygiene as it impacts sleep quality. The degree to how and why for individual sleepers proves to be a valuable direction to take to help the sleeper improve their sleep.

Recommendations

- Use sleep hygiene lists, consistently with each patient.
- Request a sleep log or minimally, within the instructions, a

three-day recall of their sleep-in term's bedtimes, waketimes, number of awakenings and lengths of awakenings as well as their rating of their sleep.

- Encourage the patient's trial of sleep hygiene practices for a minimal period of two weeks for a substantive behavior change to be obtained. Individualized sleep hygiene plans relevant to the patient's monitored sleep are necessary.

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Appendix 1. Sleep Hygiene Behaviors

There is an excellent list of sleep hygiene behaviors at the following source:

http://sdlab.fas.harvard.edu