

Evaluation and Comparison of Sleep Quality Among Medical and Yogic Students – A Questionnaire Based Study

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ABSTRACT

Background: Sleep related disorders are recognized in one third of the western population. Poor sleep quality has major negative long term impact on health, prevention programs should focus especially on the subjective sleep quality.

Objective: To Evaluate and compare the sleeping behavior and to analyze sleep quality among medical and yogic students.

Materials and Methods: 1st year medical students from J N Medical College who were randomly selected and yogic students from S-VYASA completed questionnaires assessing sleep quality.

Results: Yogic students showed better quality of sleep. Daytime sleepiness scale score was found with $p < 0.05$ and feeling of being refreshed on waking in the morning was higher with $p < 0.001$. The sleep latency was lower in yogic students as compared to medical students with p value < 0.05 the sleep duration was found to be higher in medical students.

Conclusion: Study suggests poor sleep in medical students which may adversely impact their academic performance, yoga interventions to improve sleep hygiene can be suggested to improve their quality of sleep.

KEY WORDS: Sleep Quality; Medical Students; Yogic Students

INTRODUCTION

Sleep related disorders are recognized in one third of the western population. It affects the mood, behavior, work and quality of life and pose several health problems, their recognition and treatment can help in improving the functional ability of the individual while preventing hypertension, psychological disturbances and accidents.^[1] From a behavioral standpoint, sleep is a state of decreased awareness of environmental stimuli that is distinguished from states such as coma or hibernation by its relatively rapid reversibility. Sleep plays an important role in normal development and everyday functioning^[1] and sleep problems can lead to significant morbidity, such as depressive symptoms^[1], behavior problems^[2], impaired neurobehavior functioning^[3], sleep loss due to voluntary bed time curtailment has become hallmark of modern life, owing to their hectic schedules medical students are known to have erratic sleep patterns. Sleep itself is in short supply for young physicians in their formative years because they stay up late to cram for examinations in medical college followed by prolonged stints at the hospital.^[4]

Studies in the psychological literature have linked sleepiness and fatigue to decrease in vigilance, reaction time, memory, psychomotor coordination, information processing, and decision making.^[5]

Yoga is ancient Indian Science and a way of life which brings about relaxation and also induces a balanced mental state.^[6]

Studies have shown that the practice of yoga reduces signs of physiological arousal in normal volunteers based on measurements of autonomic and respiratory variables and oxygen consumption and decrease in plasma catecholamine levels.^[7]

Recent study has shown that Mindfulness techniques & practicing cyclic meditation twice a day improved the objective and subjective quality of sleep on the following night.^[8]

This study aims at evaluation and comparison of sleep quality among medical and yogic students and to explore the effect of yoga on sleep quality.

MATERIALS AND METHODS

This study was carried out after obtaining institutional ethical committee clearance and informed consent.

Participants were Medical students from JNMC, KLE University, Belgaum, and Yogic Students from S-VYASA, Bangalore, Karnataka, India.

Questionnaire was distributed randomly among thirty 1st year medical students from JNMC Belgaum and thirty 2nd semester B.Sc. Yogic students from S-VYASA, Bangalore. All the students were explained about how to fill the questionnaire.

Inclusion criteria

- Normal healthy volunteers aged between 18-23 years

Exclusion criteria

- Students with physical/psychological illness
- Individuals under any kind of medications
- Individuals with Previously diagnosed sleep disorders.

Sample size

30 individuals from each group who fulfilled the criteria

Design

Two Groups onetime assessment study of sleep quality. Standardized Questionnaire on sleep pattern and Epworth sleepiness scale score, ^[9] and modified Pittsburgh Sleep Quality Index was used to evaluate the sleep quantity and quality. Questionnaire was distributed among willing participants.

Data Analysis

Percentage of students with their sleeping times, the sleeping Quality scoring data of both group

students was statistically analyzed using two sample t-test. The results were computed by SPSS Software version 19.

RESULTS

Total of 60 students were included in the study, 30 medical and 30 yogic students. The mean age group of medical students with S.D was 17.23 ± 0.43 and mean age group of yogic students with S.D was 17.16 ± 0.56 . Among two groups, yogic students showed better quality of sleep.

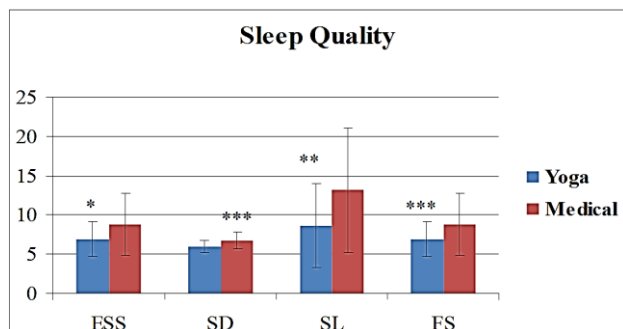


Figure-1: Sleep Quality (ESS- Epworth sleepiness scale, SD- Sleep duration, SL- Sleep Latency, FS- Freshness after sleep)

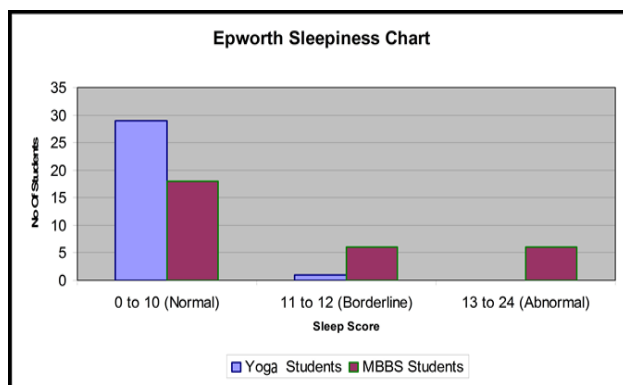


Figure-2: Epworth Sleepiness Chart

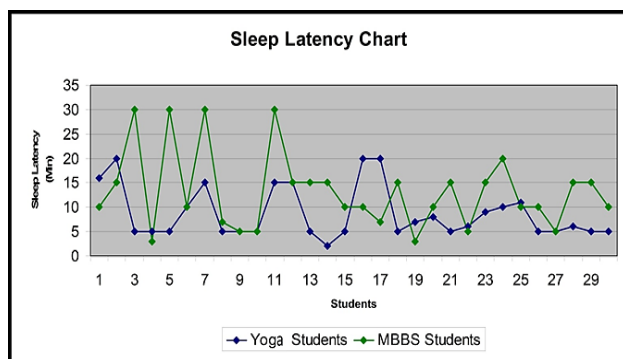


Figure-3: Sleep Latency Chart

There was significant decrease in day time sleepiness ($p < 0.05$) and sleep latency ($p < 0.001$) in yogic students and feeling of being refreshed

on wakening in the morning was higher in yogic students with $p < 0.001$.

The average sleep duration of medical and yogic students was 6.78 ± 0.8197 and 5.96 ± 1.0560 hours respectively.

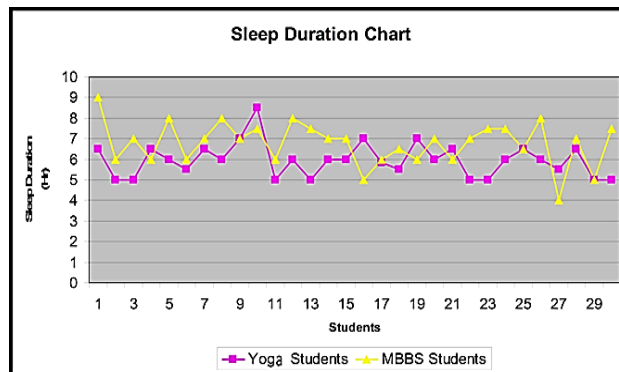


Figure-4: Sleep Duration Chart

DISCUSSION

To our knowledge, this is the first comparative study of sleep quality among medical and yogic students. Using a validated measure of self-reported sleep quality, we found that the yogic students had a better quality of sleep than medical students.

It suggest that the practice of yoga by medical students may increase their quality of sleep by decreasing day time sleepiness and sleep latency which significantly influences the subjective sleep quality.

In the present study the improvement in sleep following yoga was in agreement with earlier reports. Poor sleep and erratic sleep pattern reported by medical students could have been influenced by factors like their hectic schedule.

According to normative sleep stage data across age groups, the sleep latency in minutes for age group between 20-29 is 6.3 minutes in an average; in our study we found that the highest sleep latency in medical students to be 30 minutes. Taking into account that poor sleep quality has major negative long term impact on health. Prevention programs should focus especially on the association between depressive symptoms and subjective sleep quality that is significantly influenced by sleep onset latency.

Meditation has been shown to reduce stress and increase feeling of peace and calm.^[10] This suggests several application and possible benefits of practicing meditation; one of them is probably improvement in sleep. Assumption may be made based on the fact that real-world stress influences cardio-respiratory functions during sleep, hence influencing the restorative function of sleep.^[11] In keeping with this, yoga and meditation techniques have been found to improve the quality of sleep.^[12]

Sleep is shown to play a key role in important cognitive and psychological processes, including learning and offline memory consolidation^[13], human heuristic creativity and insightfulness^[14], cognitive abilities^[15], consolidation of emotional memory^[16]. Collectively, these data emphasize the beneficial effects of restoring sleep on physical, cognitive, and psychological well-being.^[17]

One limitation of our study was that sleep was subjectively assessed and no objective measures of sleep were obtained.

CONCLUSION

The study concludes that yoga practice which includes asana, relaxation with awareness improves sleep quality, feeling of being refreshed and less day time sleepiness.

Taking into account that poor sleep quality has major negative long term impact on health, prevention programs should focus especially on the subjective sleep quality. Yoga interventions to improve sleep hygiene can be suggested to medical students who have erratic sleep pattern due to their hectic schedules, as the practice of yoga helps to induce sleep and relaxation and relieves stress and tension.

REFERENCES

1. Sinha S. Sleep in Wilson's disease - Questionnaire based study. *Ann Indian Acad Neurol* 2011; 14:31- 4.
2. Lavigne JV, Arend R, Rosenbaum D, Smith A, Weissbluth M, Binns HJ. Sleep and behavior problems among preschoolers. *J Dev Behav Pediatr* 1999; 20:164 - 9.
3. Ali NJ, Pitson DJ, Stradling JR. Snoring, sleep disturbance, and behavior in 4-5 year olds. *Arch Dis Child* 1993; 68:360-6.
4. Rosen C, Rosekind M, Rosevear C, Cole WE, Dement WC. Physician Education in Sleep and Sleep Disorders. A National Survey of U.S. Medical Schools. *Sleep* 1993; 16: 249-254.
5. Lyznicki JM, Doege TC, Davis, RM, Williams WA. Sleepiness, driving, motor vehicle crashes. *JAMA* 1998 ; 279(23):1908-13.
6. Vempati RP, Telles S. Yoga-based guided relaxation reduces sympathetic activity judged from baseline levels, *Psychol Rep.* 2002 ; 90(2):487-94.
7. Udupa KN, Singh RH, Yadav RA. Certain studies on psychological and biochemical responses to the practice in Hatha Yoga in young normal volunteers. *Indian J Med Res.* 1973 ;61(2):237-44.
8. Patra S, Telles S. Positive impact of cyclic meditation on subsequent sleep. *Sci Monit.* 2009; 15(7):CR375-81.
9. Johns MW. A new method for measuring daytime sleepiness: the Epworth Sleepiness scale. *Sleep*. 14:540-5.
10. Oman D, Shapiro SL, Thoresen CE. Meditation lowers stress and supports forgiveness among college students: a randomized controlled trial. *J Am Coll Health* 2008; 56(5): 569-78.
11. Sakakibara M, Kanematsu T, Yasuma F, Hayano J. Impact of real-world stress on cardiorespiratory resting function during sleep in daily life. *Psychophysiology* 2008; 45(4): 667-70.
12. Winbush NY, Gross CR, Kreitzer MJ. The effects of mindfulness based stress reduction on sleep disturbance: a systematic review. *Explore (NY)* 2007; 3(6): 585-91.
13. Walker MP, Stickgold R. Sleep, memory, and plasticity. *Annu Rev Psychol* 2006;57:139-166.
14. Wagner U, Gais S, Haider H. Sleep inspires insight. *Nature* 2004; 427:352-355.
15. Bódizs R, Kis T, Lázár AS. Prediction of general mental ability based on neural oscillation measures of sleep. *J Sleep Res* 2005;14: 285-292.
16. Nishida M, Pearsall J, Buckner RL, Walker MP. REM sleep, prefrontal theta, and the consolidation of human emotional memory. *Cereb Cortex* 2009;19:1158-66.
17. Cirelli C, Tononi G. Is sleep essential? *PLoS Biol* 2008;6:216.

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