

# SINGAPORE SLEEP REVIEW

SINGAPORE SLEEP SOCIETY NEWSLETTER

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## PRESIDENT'S MESSAGE

We are happy to present the second issue of the Singapore Sleep Review. Since our last issue, we have found new sponsors and gained support from the Academy of Medicine Singapore - Chapter of Sleep Medicine Physicians to increase our reach.



The Singapore Sleep Society (SSS) is an independent non-profit organization dedicated to promoting awareness, understanding and research in the field of sleep medicine in Singapore. Throughout the year, we offer and promote educational programmes for medical professionals, members of the public, and corporate entities. In this light we were very happy to be involved in the recent World Sleep Day symposium (organized with Ng Teng Fong General hospital) and webinar (organized by SingHealth).

Through this newsletter we aim to keep you updated on relevant events and research in sleep medicine and science. We hope you find these articles useful. If you would like us to highlight any other articles or issues of interest, please don't hesitate to contact us. You can support our society by becoming a member or making a donation.

Dr Sridhar Venkateswaran  
President, Singapore Sleep Society



Dr Madeleine Tan presenting during the in-person NFTGH/SSS World Sleep Day Symposium 2023

## OSA

Lived experiences of OSA patients reveal impacts on quality of life

## OSA TRIAL

Targeted hypoglossal nerve stimulation is a promising treatment for OSA. A recent randomized controlled trial shows favorable patient outcomes

## EDUCATION

Large scale analysis of university digital data shows that early lecture hours are associated with poor sleep and worse academic outcomes



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## Quality of Life in Patients with Obstructive Sleep Apnea

Reference Chua, AP., Soh, Z.Y., Rahman, S.A. *et al.* Lived experience of patients with sleep apnea: a systematic synthesis of qualitative evidence. *Qual Life Res* 32, 1447–1467 (2023). <https://doi.org/10.1007/s11136-022-03332-7>.

Besides the direct effects of Obstructive Sleep Apnea on sleep health, patients often suffer from downstream psychological and social consequences. A recent review examined the experiences of patients living with OSA.

A total of 14 studies were included, covering interviews and qualitative analysis of over 400 patients. In the patients' answers, four main themes came to light. Primary sleep issues were found in all studies. These issues could range from struggling with sleep disruptors (snoring/breathlessness/restless sleep) to dealing with daytime sleepiness and fatigue/low motivation, as well as poor cognitive performance. A second theme in the patients' responses was a feeling of reduced psychological well-being. Many patients indicated to be worried about their health situation, which caused insecurity and anxiety. Feelings of sadness and hopelessness were also often reported, alongside feelings of embarrassment and guilt about one's health situation. Furthermore, feelings of irritability and hostility were often reported. The impairments and inconveniences reported by patients also led to reduced functioning in professional and everyday life activities.



Besides having difficulties concentrating on the job, some patients reported that the need for regular naps interfered with their work expectations. Many patients mentioned having to call in sick more often, and when on the job, being less productive. In some cases, this could even lead to job loss. Finally, many patients indicated to experience difficulties in social and relational functioning. Sleep difficulties and snoring could often put a strain on a partner's sleep too.

### Conclusion

Many OSA patients suffer from reduced quality of life as a primary or secondary consequence of their sleep difficulties. Understanding the lived experiences of patients can help to facilitate the delivery of patient-centric care.

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# Targeted Hypoglossal Nerve Stimulation as treatment for OSA

Reference: Schwartz AR, Jacobowitz O, Eisele DW, et al. Targeted hypoglossal nerve stimulation for patients with obstructive sleep apnea: a randomized clinical trial. *JAMA Otolaryngol Head Neck Surg.* (2023).  
<https://doi.org/10.1001/jamaoto.2023.0161>

Among surgical alternatives for treating OSA, hypoglossal nerve stimulation can maintain tongue muscle tone and restore upper airway patency by preventing the tongue from prolapsing into the pharynx during sleep.

Stimulation of the distal hypoglossal nerve that targets the muscles that control tongue protrusion is currently the de facto therapy for hypoglossal nerve stimulation. This study evaluates the safety and efficacy of an alternative approach for activating lingual muscles in the form of targeted stimulation of the proximal hypoglossal nerve. Proximal nerve stimulation aims to achieve co-activation of different tongue muscles to restore pharyngeal patency by stiffening rather than protruding the tongue. The system used for proximal nerve stimulation involves the use of a multi-contact electrode that allows varying degrees of stimulation to tongue protruders, retractors and intrinsic muscles. Other differences include cuff attachment to the proximal nerve without the need for isolation of branches that activate tongue protruders and asynchronous nerve stimulation that does not require the need for respiratory sensor lead placement. Taken together, these features are purported to streamline device implantation and reduce surgical duration and risk.

This parallel-arm randomized clinical trial of 138 patients with moderate to severe OSA randomized patients into 2 groups where the device was activated at month 1 (treatment) and month 4 (control). All patients subsequently received 11 months of treatment with follow-ups at months 12 and 15 respectively.

Responders were defined by a 50% or greater reduction in AHI to 20 or fewer events per hour and a 25% or greater reduction in oxygen desaturation index (ODI) from baseline. At month 4, response rates were substantially greater in those in the treatment vs control group (AHI, 52.3% vs 19.6%; ODI, 62.5% vs 41.3%, respectively). Months 12 and 15 response rates in both groups were 42.5% and 60.4% for AHI and ODI, respectively. Apart from respiratory indices, improvements in Epworth Sleepiness Scale, Functional Outcomes of Sleep Questionnaire, and EQ-5D visual analog scale scores were all clinically meaningful. Although overall response rates were lower in this study compared to a prior study evaluating distal nerve stimulation, absolute reductions in AHI were comparable. A similar range of adverse events related to the implant and therapy delivery was reported in both forms of stimulation strategies; however, pneumothorax was averted with this system because it does not require intercostal sensing lead placement.

## Conclusion

Proximal targeted hypoglossal nerve stimulation proved safe and effective in treating OSA while comparing favorably with distal hypoglossal stimulation.

## LOOKING FOR AN ALTERNATIVE CLINICALLY PROVEN TO TREAT OBSTRUCTIVE SLEEP APNEA

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## Sleep problems in midlife Singaporean women

Reference: Wong BW, Chan YH, Kramer MS, Sundström-Poromaa I, Logan S, Cauley JA, Yong EL. Factors associated with poor sleep quality in midlife Singaporean women: The Integrated Women's Health program (IWHP). *Sleep Medicine: X*.100060.(2023). <https://doi.org/10.1016/j.sleepx.2022.100060>

Physiological and psychological symptoms experienced during menopause can be associated with sleep difficulties. Some studies have found hot flushes and night sweats related to sleep disturbances and insomnia.

Most studies have been done in US or European populations, but there might be differences related to ethnic or environmental influences. In this study, factors underlying sleep problems were examined in a sample of midlife Singaporean women. Twelve-hundred healthy women between the ages of 45 and 69 provided ratings of their sleep quality, menopausal symptoms, and health status. Overall, higher severity of menopausal symptoms was associated with poorer sleep quality. When looking at individual symptoms, increased irritability and vaginal dryness were related to poorer sleep. Associations with other menopausal symptoms such as hot flushes and physical and mental exhaustion were less strong and did not reach significance. Among other health factors, urinary incontinence, asthma, and history of breast cancer were also related to poorer sleep quality.

### Conclusion

Midlife-related factors can negatively impact women's sleep health and can be different in Asian versus Western populations.



Up to **67%** of women suffer from sleep issues<sup>1</sup>



Almost **40% higher** lifetime risk of insomnia than men<sup>4</sup>



**Sleep Apnea** in women is often underdiagnosed, and undertreated<sup>5</sup>

## Give women the gift of a good night's sleep!

Obstructive sleep apnea (OSA) affects nearly 1 in 5 women and has been linked to serious health risks like hypertension and heart failure<sup>3</sup>.

Resmed have been helping people with sleep apnea for over 30 years, join forces with us to improve women's overall sleep health today!



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## Short sleep duration in school-aged children

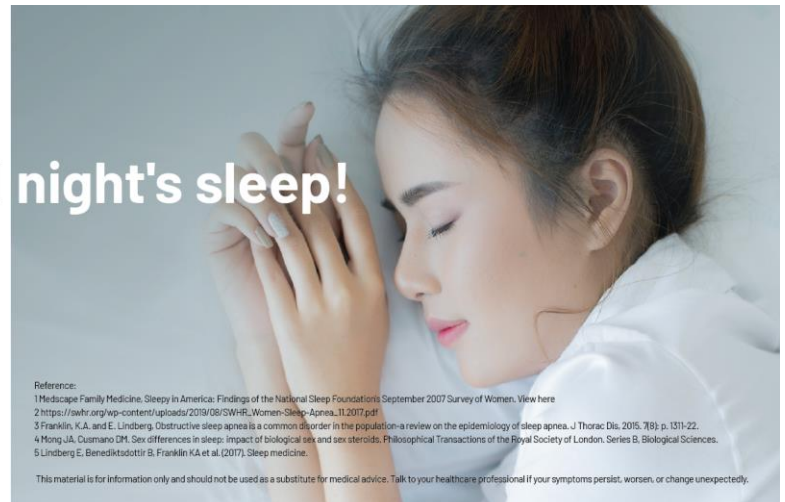
Reference: Koa, T.B., Seah, J.X., Ong, J.Q.W., Lo, J.C. Short sleep duration in school-aged children: Differential factors on weekdays and weekends. *Behavioral Sleep Medicine*. (2023). <https://doi.org/10.1080/15402002.2022.2164001>

Healthy sleep is essential for child development and school performance. Expert guidelines recommend 9 to 12 hours of sleep per night for school-aged children. These recommendations are not always met.

In this online survey study, parents of Singaporean children aged 6-12 were asked about their children's sleep habits and factors that influence sleep. Out of 251 respondents, 64.5% of children slept less than the minimum recommended 9 hours on school days (average = 8.42 hours). On weekends, this was better as only 19.5% of children slept less than 9 hours. While most parents set a bedtime for their children on weekdays (91%), bedtimes were more relaxed on weekends (45%). Poorer sleep hygiene practices (such as using electronic devices 1 hour before bedtime) were associated with shorter sleep, as were earlier school start times. Most parents prioritized time to sleep over time for electronic leisure activities, but time spent studying and spent on face-to-face social interactions was more often allowed to replace sleep.

### Conclusion

Singaporean school-aged children do often not get enough sleep during weekdays. This was associated with poor sleep hygiene and early school start times.



Reference:

- 1 Medscape Family Medicine. Sleepy in America: Findings of the National Sleep Foundation's September 2007 Survey of Women. View here
- 2 [https://swbr.org/wp-content/uploads/2019/08/SWHR\\_Women-Sleep-Apnea\\_112017.pdf](https://swbr.org/wp-content/uploads/2019/08/SWHR_Women-Sleep-Apnea_112017.pdf)
- 3 Franklin, K.A. and E. Lindberg. Obstructive sleep apnea is a common disorder in the population—a review on the epidemiology of sleep apnea. *J Thorac Dis*. 2015; 7(8): p. 1311-22.
- 4 Mong JA, Cuasano DM. Sex differences in sleep: Impact of biological sex and sex steroids. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*.
- 5 Lindberg E, Benediktsson B, Franklin KA et al. (2017). *Sleep medicine*.

This material is for information only and should not be used as a substitute for medical advice. Talk to your healthcare professional if your symptoms persist, worsen, or change unexpectedly.

# Early class start times impair sleep and academic performance

Reference: Yeo, S.C., Lai, C.K.Y., Tan, J., Lim, S., Chandramoghan, Y., Tan, T.K., Gooley, J.J. Early morning university classes are associated with impaired sleep and academic performance. *Nat Hum Behav* 7, 502-514 (2023).  
<https://doi.org/10.1038/s41562-023-01531-x>

University students who attend classes and sleep well are more likely to get good grades. However, early morning classes may force many students into making one of two undesirable choices: sleep longer instead of attending class or wake up earlier to attend class while sleep-deprived.

At the National University of Singapore, students' archived digital traces were used to test whether early morning classes were associated with lower attendance, shorter sleep, and poorer academic achievement. Wi-Fi connection logs in 23,391 students showed that lecture attendance was more than ten percentage points lower for classes at 08:00 compared with later start times. Diurnal patterns of activity on digital learning platforms in 39,458 students showed that their opportunity for nocturnal sleep was about an hour shorter for early morning classes. An actigraphy study in 181 students confirmed that they frequently slept past the start of classes at 08:00, but still lost about an hour of sleep due to waking earlier than usual.

Analyses of grades in 33,818 students showed that having morning classes on more days of the week was associated with a lower grade point average. These findings suggest that there may be cumulative negative effects of morning classes on sleep and performance. Universities should therefore consider avoiding mandatory early morning classes.



These findings do not stand alone. A recent analysis of over 600 freshmen students in three major US universities showed that the amount of sleep students get in the early semester was predictive of their GPA at the end of the term. With every extra hour of sleep, a higher score, by 0.7 points, was observed. With an average of less than 6 hours of sleep per night, grades started to decrease strongly. These associations were present over and above the influence of gender, race, and academic term load. Sleep therefore seems to be an important determinant of academic performance.

## Conclusion

Good sleep is an important predictor of academic performance. Early class start times can interfere with sleep sufficiency, class attendance, and academic outcomes.

Reference: Creswell, J.D., Tumminia, M.J., Price, S. et al. Nightly sleep duration predicts grade point average in the first year of college. *Proc Natl Acad Sci (PNAS)* 120, e2209123120 (2023).  
<https://doi.org/10.1073/pnas.2209123120>



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## CALENDAR

**24 MAY**

### **The Dreaming Brain: CSC Seminar**

*Dr Francesca Siclari, The Netherlands Neuroscience Institute*

Date: 24 May 2023, 3pm, Online via Zoom (click [here](#) to join)

**23 AUG**

### **Singapore Sleep Society Annual General Meeting**

*Save the Date! Wednesday 23 August 2023, 6pm*

**01 SEPT**

### **SingHealth ENT Head & Neck Instructional Course**

*Polysomnography (PSG) workshop, Continuous Positive Airway pressure (CPAP) workshop, & Orofacial Myofunctional Therapy (OFMT) workshop*

Click [here](#) to register

**23 SEPT**

### **ESRS Online Sleep Medicine Exam**

*Sleep Medicine Exam for physicians, psychologists, sleep scientists, physician assistants and sleep technologists*

Click [here](#) to apply

**17-19 NOV**

### **ASPR 2023**

*27<sup>th</sup> Congress of the Asian Pacific Society of Respiriology*

Venue: Suntec Centre, Singapore

<https://apsr2023.sg/>

**10-13 DEC**

### **ASSM 2023**

*4<sup>th</sup> Congress of the Asian Society of Sleep Medicine, Bangkok, Thailand*

Including WSS Sleep Medicine Exam

<https://assm2023-bangkok.com/>

## Singapore Sleep Society

### Membership Application and Fees

#### Ordinary members

\$30/year – sleep professionals with a medical degree, PhD or equivalent.

#### Associate members:

\$10/year – any person involved in the field of sleep disorders without the above qualification.

#### Supporting members:

Corporations and individuals supporting the society financially.

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