

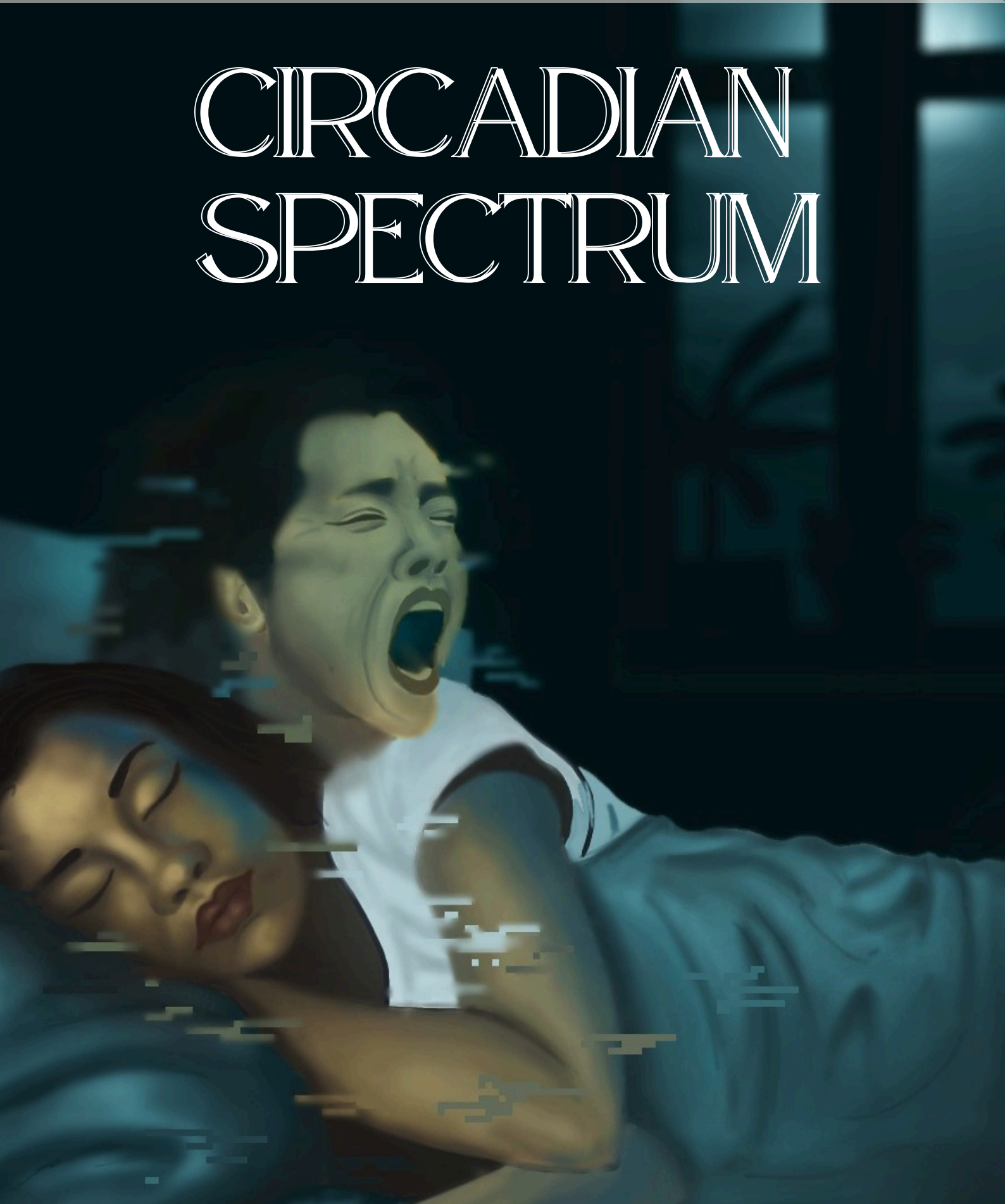
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THE GREY MATTER

QUARTERLY NEWSLETTER FOR MEDICAL STUDENTS

CIRCADIAN SPECTRUM



BEYOND HUSTLE CULTURE

In a world that celebrates working till exhaustion and relentless productivity, the need for rest has taken a backseat. Sleeplessness has become a badge of honour, when in reality, it is often a sign of distress. What if, in our quest to prove our ambition and perseverance, we have neglected the very thing that is fundamental to our mental and physical well-being?

Sleep is a biological necessity, and not a luxury. It is critical to memory, emotion, cognition, and healing. Even so, sleep disorders remain underdiagnosed, undertreated, and too often dismissed.

Volume 24 of The Grey Matter turns its focus to one of the most fascinating frontiers in medicine: sleep. As neuroscience continues to uncover new mysteries about how and why we sleep, it becomes clear that rest is not the opposite of productivity, but a prerequisite for it. Through expert insights, research findings, and practical advice, we explore how sleep disruption not only impairs health but also daily life in profound ways. Let us delve into the rhythms and reasons of sleep—because even the most brilliant minds need their rest.

— Shreya Iyer, Editor-in-Chief

Happy reading!



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The Caffeinated Cascade

-Grisha Mohite, III/I M.B.B.S., M.I.M.E.R. Medical College, Pune

How refreshing the day feels when it begins with a cup of coffee! Can you imagine pulling an all-nighter without black coffee or an energy drink?

Caffeine is the world's most widely consumed psychoactive substance, and its stimulating effects are well-known. Its role in our sleep patterns goes beyond keeping us awake. Caffeine directly interferes with the body's natural sleep-wake regulation system, setting off a cascade of effects that can impair both the quantity and quality of sleep.

At the heart of this relationship lies a molecule called adenosine. As our brains use energy throughout the day, a byproduct called adenosine accumulates in the neural pathways. This build-up creates "sleep pressure," a homeostatic drive to sleep. The longer you are awake, the more adenosine collects, and the sleepier you feel. Caffeine acts as a competitive antagonist of adenosine, meaning its molecular structure is similar enough to bind to the same receptors in the brain. When caffeine occupies these receptors, it blocks adenosine from attaching, suppressing the brain's sleepiness signals. This is why a morning cup of coffee can make you feel so energized and ready to start the day.

However, the effects of caffeine are not short-lived. Its half-life—the time it takes the body to eliminate half of the substance—ranges from 2 to 12 hours, with an average of about 4 to 6 hours in most healthy adults. That means even a cup of coffee consumed in the late afternoon can leave a significant amount of caffeine in your system by bedtime. The result is often a restless night: Increased sleep latency (you may find yourself lying awake longer than usual), reduced total sleep time (cutting into your total sleep time), and even after you do drift off, your rest is more fragmented, with frequent awakenings that prevent truly restorative sleep.

Sleep itself is not a uniform state but a cycle of stages, each with unique functions. Caffeine is particularly detrimental to some of the most crucial ones.

Deep sleep, or slow-wave sleep, is the most restorative stage, essential for physical recovery, cellular repair, and memory consolidation. Caffeine has been shown to reduce time spent in deep sleep, meaning that even if you log enough hours, the quality of that rest may be compromised, leaving you feeling less refreshed. REM sleep, critical for emotional processing, learning, and dreaming, can also be delayed or shortened under the influence of caffeine, though to a lesser extent.

This interference can trap people in a vicious cycle: caffeine disrupts sleep, poor sleep leaves you tired the next day, and in turn, you reach for more caffeine to stay awake. Over time, this pattern can spiral into chronic sleep deprivation, linked to anxiety, impaired cognitive function, and a heightened risk of chronic illness.

For anyone struggling with sleep, being mindful of caffeine intake is one of the most effective strategies. Setting a cut-off time—ideally avoiding caffeine within six to eight hours of bedtime—helps limit its interference. For a typical 10 PM bedtime, this would mean a final cup of coffee no later than 2 PM. Remember, caffeine hides in more than just coffee: tea, chocolate, soda, and even some medications contribute to your daily dose. Individual sensitivity varies with genetics, age, and metabolism, so paying attention to how your body responds is key.

Caffeine's role in our sleep is one of disruption rather than support. While it can be a useful tool for promoting daytime alertness, its long-term effects on the brain's sleep-regulating systems compromise the deep, restorative rest we truly need. By understanding this balance and making conscious choices about when and how much caffeine to consume, we can break the cycle of fatigue and pave the way for a more restful and restorative night.



IN PURSUIT OF SLEEP

Col. (Dr.) Karuna Datta, MD, DNB, FAIMER, Certified Sleep Medicine Specialist
In conversation with Shreya Iyer, III/I M.B.B.S., M.I.M.E.R. Medical College, Pune



Col (Dr) Karuna Datta is a leading expert in sleep medicine and currently heads the Sleep Health Clinic at Army Hospital (R&R), Delhi Cantt, where she also serves as Professor. She has previously served as Professor and Head of the Department of Sports Medicine at AFMC, Pune. She also led the Human Sleep Research Lab at AFMC Pune, contributing significantly to both research and clinical practice in the field.

A President's Gold Medallist (1994) and recipient of the Shushila Thaker Prakruti Mandir award at APPICON 22 for the best research paper in natural health, naturopathy, and yoga, Dr. Datta brings a unique blend of academic excellence and clinical innovation. She recently completed a Capstone project as part of the IISc Advanced Course in Digital Health Certification Program. She has authored numerous research papers and two books—My Sleep Diary and Making Sense of Sleep Medicine. Her work bridges neuroscience, sleep research, and public education, making her a pioneer in the field.

1. What inspired your journey into the field of sleep medicine?

In 2003, while working on a GERD and laryngopharyngeal reflux project at AFMC Pune, I observed many patients with sleep issues. This sparked my interest in sleep science. In 2007, during a WHO neurophysiology fellowship, I worked in a sleep lab studying Vipassana meditators. I gained hands-on experience by working in the autonomic lab by day and the sleep lab by night, also interacting with yoga nidra practitioners.

Fascinated by the science of sleep, I used my leave and savings over the next two years to build my expertise. In 2011, I got an opportunity through my services to pursue a PhD at AIIMS, New Delhi. I proposed a thesis in 2012 that integrated sleep medicine and neuroscience research.

Luckily, at the time, a sleep medicine certification exam by the World Sleep Society became available. Based on my experience, I was eligible to apply and successfully completed it to be the first batch of doctors to get qualified in India to get certified in 2012.

2. Can you walk us through your DST SATYAM project and what sparked the idea of studying Yoga Nidra in healthy volunteers?

My tryst with yoga nidra has been long and deeply insightful. It began during my fellowship at NIMHANS Bengaluru, where I observed meditators practicing yoga nidra at night. This sparked my interest in creating a model suitable for non-meditators. Later, during my PhD, I developed and published a therapeutic Yoga Nidra protocol specifically for novice practitioners. Working on my thesis gave me great insight as I understood the changes seen on the EEG with yoga nidra practice. The practice would be done in the morning, and the changes were noted in the sleep at night. Neuroscience research demonstrated that during the yoga nidra practice, there was evidence of local sleep.

Curious about whether this local sleep translated to changes in cognitive processing, I used a protocol where I took the cognitive battery test and studied the effect of yoga nidra practice on cognition.

We found that cognitive processing improved for all tests as the reaction time for them reduced without affecting the accuracy; in fact, it improved in the tasks requiring learning and memory. The study was published in PLOS One in 2023 and was selected as the media highlight article of the week.

In hindsight, the journey had its challenges, but the insights gained into sleep cognition and Yoga Nidra made it a truly rewarding experience.

3. What are the most common sleep disorders you are seeing in your practice today?

Common sleep disorders are insomnia, obstructive sleep apnoea (OSA), restless leg syndrome (RLS), and insufficient sleep syndrome/sleep deprivation. These conditions often present either directly or indirectly in patients visiting me. Most of the time, the patient does not realize the sleep complaint but reports to a hospital for other disorders like hypertension, diabetes, hypothyroidism post stroke, primary infertility, or other cardiovascular and neurovascular conditions. Referrals in school children and adolescents usually occur after parents report a decline in academic performance or a disrupted circadian rhythm due to electronic devices and social media.

I am glad that people are now seeking help for sleep-related issues. For over a year now, I run a sleep health clinic at Army Medical Hospital (R&R), Delhi, which is one of its kind in the country. Our aim is to make people aware of the early signs of sleep issues so they can be addressed before developing into full-fledged disorders. We have also created a video on sleep health to support this initiative.

4. How do you typically assess sleep health in your clinic? Is your preferred approach subjective (questionnaires) vs. objective (polysomnography, actigraphy)?

Assessment of sleep health is done mostly using the standard criteria and which are termed as a disorder, based on the International Classification of Sleep Disorders (ICSD-3).

There are practice parameters for the management of each disorder. That is what we follow, and we have facilities for both objective and subjective evaluation.

5. In your experience, how often are sleep complaints actually masking underlying issues such as depression, anxiety, or PTSD?

Sleep complaints and psychiatric illnesses are interlinked. To determine exactly what comes first, or which is the cause and which is the effect, is very difficult to pinpoint. However, one thing that I would like to reiterate here is that if there is a co-existing sleep disorder, it is a distinct entity and needs to be dealt with using sleep disorder management guidelines.

6. Which research project or outcome have you been most proud of, and why?

I am very proud of developing a therapeutic model of yoga nidra practice. It is a very effective technique, but if we do not use it scientifically as put forth in this model, then most often than not, the participants will be only doing nidra (sleep) rather than an effective yoga nidra practice. Furthermore, I feel grateful that I was able to demonstrate a change in sleep and cognition of otherwise healthy volunteers, apart from its positive effects on sleep in insomnia patients. I feel good about it because whatever I learnt while doing my PhD, I was able to continue at my alma mater and develop a good standard sleep research lab.

7. What has been a learning point in your journey?

Without challenges, life will be very bland. Every time life throws a challenge at you, the most important learning is to identify it as a challenge and not crib about it. Be perseverant, be healthy, and have a positive outlook. Always try to understand why the situation has arisen, and then try to work on how it can be improved. Sometimes we are clouded by our perspective, so put yourself in the other person's shoes or try to understand the situation in which this challenge happened, and then you realise how to go about it. That has been my biggest takeaway.

8. Looking ahead, what excites you the most about the evolving field of sleep science?

I am deeply committed to promoting better sleep health. It drives me to reach wider audiences so they can understand and take charge of their sleep. I consider this my life's purpose. Many patients I meet have struggled with sleep issues for years without recognizing or addressing them. Hearing their stories only motivates me further to raise awareness.

I began conducting awareness sessions for various groups, like sportspersons and high physical and cognitive performers. I also presented a TEDx talk for college students.. Across all these forums, one common issue stood out: lack of awareness. Unless people are aware, they cannot take action. This led me to write books for both laypeople and medical professionals. This year, we also released a video series in multiple languages to encourage people to recognize and manage sleep problems.

I also conducted a systematic review, which revealed a high prevalence of insomnia, OSA, and RLS in Indian populations, even in otherwise healthy individuals. This is a clear call to action: we must take sleep health seriously. Another area that deeply interests me is improving sleep in astronauts, athletes, and other high performers. Using personalized approaches, I've shown that better sleep can enhance performance. I hope to take this work further in the future.

9. Are there identifiable neurocognitive benefits (e.g., memory, reaction time) in patients with sleep disorders post-intervention, or do these only show up in healthy volunteers?

Improvement in sleep is known to have neurocognitive benefits. Most of the data was initially available from sleep deprivation models. One of the functions of sleep is thus ascribed to neurocognitive benefit. Identifiable neurocognitive benefits following sleep improvement in patients with sleep disorders are available in plenty of research articles.

10. What is your advice to someone training to become a physician-scientist?

As budding doctors, it is important to keep your curiosity alive. If one does not ask questions, one can never understand, and if one does not understand, one will never genuinely be passionate about one's work. My advice would be: Work hard, learn hands-on skills, do good to the patient, identify a problem area, define the gap, make a research question, and then conduct your research accordingly.

COMIC



Made by Ananya Anturkar, III/I M.B.B.S.,
M.I.M.E.R. Medical College, Pune

LIGHTS CAMERA PRESCRIPTION!

Curated by Khyati Garg, III/I M.B.B.S., M.I.M.E.R. Medical College, Pune

This K-drama, set in a small Korean town, follows the protagonists through a unique love story as they navigate their complicated lives. The cinematography is one of the most aesthetic I have ever seen, and I often rewatch it on nights when I need comfort. Winter is portrayed so vividly that the audience can feel the peaceful cold seeping from the screen into their bones. The male lead struggles with insomnia and writes a blog about it, making it a perfect recommendation for anyone who enjoys simple plots, layered characters, and poetic dialogue.

**WHEN THE
WEATHER IS
FINE**

**THE QUEST FOR
SLEEP
(YOUTUBE)**

An insightful and relatable documentary for anyone struggling with insomnia or stress-related sleep issues. It explains how sleep (and lack thereof) works. It uniquely has sleep become a character, lyrically narrating and connecting various stories of experts and people suffering from sleep disorders. It is a relaxing yet informative watch.

This unexpected gem compiles classic children's stories with quirky, unpredictable twists. Narrated in a calm, soothing voice, it is perfect for winding down after a long day.

**TRULY BORING FAIRY TALES –
THE CASPER SLEEP CHANNEL
(YOUTUBE)**

**IS SLEEP YOUR
SUPERPOWER? TED
(YOUTUBE)**

A short, informative speech on sleep and its effects on humans that is great to watch when you are short on time. Sleep expert Matt Walker discusses how researchers have uncovered the importance of sleep from physiological, pathological, and psychological perspectives. This video motivates the viewers to improve their sleep hygiene, and is a must-watch for students who are increasingly victimized by hustle culture and glorify a sleepless lifestyle.

This video would certainly interest sci-fi lovers. Lucid dreaming, though not a new concept, remains fascinating to all. In this video, Daniel Love, a lucid dreaming coach, talks about his personal experience with lucid dreaming. If you are bored and looking for a new topic to ponder, this video is a great option.

**I'VE BEEN LUCID DREAMING
FOR 42 YEARS – DANIEL
LOVE (YOUTUBE)**

The Sleep Blueprint



-Dr. Shreya Namjoshi,
Paediatric Resident at PGIMER, Chandigarh

Sleep is as vital for children as nutrition and play. Adequate sleep promotes brain development, emotional regulation, memory consolidation, immune defense, and growth. Disturbed sleep is linked to irritability, impaired attention, poor academic performance, and increased risk of obesity and metabolic disorders. Despite this, sleep problems remain underrecognized and underdiagnosed in paediatric populations, especially in low and middle-income countries.

Normal sleep architecture evolves with age. While infants spend nearly 80% of their sleep time in active/REM sleep, NREM stages become more dominant in older children. As per recommendations, school-age children require 9-11 hours of uninterrupted sleep, while adolescents need about 8-10 hours. Unfortunately, adolescents have academic demands as well as electronic media exposure, including social media, leading to chronic sleep deprivation and mood disturbances.

Sleep doesn't simply mean "rest", but is a dynamic state playing various roles:

- REM sleep consolidates memory, learning, and creativity.
- NREM sleep restores physical health and regulates metabolism.

Disruption of these cycles thus impacts both the body and mind.

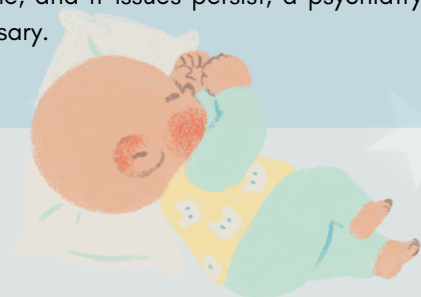
How can one recognise some common sleep disorders?

1. Obstructive Sleep Apnoea (OSA):

OSA involves repeated airway obstruction during sleep, causing snoring, laboured breathing, and intermittent oxygen desaturations. Most commonly caused due to adenotonsillar hypertrophy, it may present as hyperactivity, poor academics, or bedwetting, over daytime sleepiness. Diagnosis is considered after radiographs and ENT consultation and polysomnography. Adenotonsillectomy is recommended in certain cases.

2. Insomnia and Inadequate Sleep Hygiene

Difficulty initiating or maintaining sleep is common in adolescents and can be linked to late-night screen exposure, irregular routines, or stress. Chronic insomnia can affect mood, learning, and social interactions. Both children and parents should be counselled on sleep hygiene, and if issues persist, a psychiatry consult may be necessary.



3. Parasomnias (Sleepwalking, Night Terrors):

Sleepwalking (somnambulism) occurs in NREM sleep, most commonly between 5-10 years of age. Children may walk, talk, or perform activities while unaware. Night terrors are episodes of intense fear and autonomic arousal without recall, while nightmares are usually not forgotten. Though usually benign, safety measures are important to prevent injuries during these episodes, requiring counselling and recognition of a stressor.

4. Brief Resolved Unexplained Events (BRUE):

These are episodes of altered breathing, tone, or consciousness in infants and are linked to sudden infant death syndrome (SIDS). Often self-resolving, risk factors need to be considered that necessitate evaluation for underlying cardiac, neurological, or respiratory conditions.

The Role of Sleep Hygiene

Sleep hygiene refers to behavioural and environmental practices that promote healthy sleep. Poor habits—such as irregular sleep schedules, excessive caffeine, or late-night device use—are major contributors to sleep problems. "A well-rested child is like a well-updated phone: smoother, faster, and less likely to crash." Instituting good sleep hygiene is the first step in managing paediatric sleep disorders. Key principles include:

1. *Set a Fixed Routine:* Establish consistent bedtime and wake-up times even on weekends, reinforcing the child's biological clock.
2. *Limit Screen Exposure:* Avoid electronic devices at least 1-2 hours before bedtime. Social media/screen exposure before sleep is like pouring a cup of coffee over the brain. Blue light suppresses melatonin secretion, delaying sleep onset.
3. *Create a Sleep-Friendly Environment:* Keep the bedroom cool, quiet, and dimly lit. Remove distractions like televisions or gadgets.
4. *Promote Relaxation:* Pre-bed rituals—such as reading, gentle music, or storytelling—help transition children to sleep.
5. *Monitor Diet and Exercise:* Avoid caffeine, heavy meals, or vigorous activity close to bedtime. Encourage outdoor play during the day to enhance sleep drive.

In conclusion, sleep is not a luxury but a biological necessity for children's growth, learning, and emotional health. Adopting simple but consistent sleep hygiene measures can prevent many sleep-related problems. Good sleep today translates into healthier and happier children tomorrow.

DIALOGUE

Dr. Kamalika Roy, Department of Otorhinolaryngology, M.I.M.E.R. Medical College, Pune

In conversation with Khyati Garg, III/I M.B.B.S. and Nupur Sonawane, III/I M.B.B.S., M.I.M.E.R. Medical College, Pune



Dr. Kamalika P. Roy is currently working as an assistant professor at M.I.M.E.R. Medical College and B.S.T.R. Hospital, Talegaon, Pune. She completed her M.B.B.S. from Guwahati Medical College & Hospital and DNB from VIMS, Ramakrishna Mission Seva Pratishthan, Kolkata. She is a specialist in otolaryngology with a keen interest in head and neck oncology, having completed an observership at Dr. B. Barooah Regional Cancer Hospital, Guwahati. She has contributed to multiple publications and has presented her research at various national forums. Her work has been recognized with several accolades, including the KK Ghosh Award for Best Postgraduate Paper in West Bengal (2008) and the Best Junior Consultant Paper Award at Lucknow (2011), among other awards for poster presentations.

1) Please introduce yourself to our readers.

After completing my M.B.B.S., I got married and subsequently moved around various cities in India. I first lived in Dehradun, followed by Pune, where my husband pursued his post-graduation in Obstetrics and Gynaecology at AFMC. It was during our time in Pune that our first daughter was born. I then relocated to Kolkata to pursue my own post-graduation, after which we moved to Ayodhya, Guwahati, Delhi, and finally settled in Pune once again. I have been residing in Pune for the past seven years.

2) What made you decide to pursue a career in otorhinolaryngology?

ENT was not my preferred branch during my MBBS days. But ever since my postgraduate days, whenever someone asks me how I ended up in this field, my honest reply has been "Beggars can't be choosers." Life often works that way—just like not every romantic story has a happy ending, everyone might not get the specialty they initially dreamed of. I had originally set my sights on gynaecology, but looking back, I thank my stars for choosing ENT instead, because now I have a healthy work-life balance.

3) What are the common ENT disorders seen in clinics? Are there any you would like to elaborate upon?

In the Indian scenario, especially in a semi-rural hospital like ours, we frequently encounter several patients with Chronic Otitis Media or persistent ear discharge. Even in urban settings, we commonly see complaints of sore throat, often caused by tonsillitis or GERD (Gastroesophageal Reflux Disease). Another prevalent condition is nasal obstruction, typically due to polyps or Deviated Nasal Septum (DNS). We also observe a noticeable increase in cases of hearing loss, especially during the festive season.

4) Could you shed light on the relevance of ENT conditions in the diagnosis and management of sleep-related issues?

Sleep disturbances are often linked to ENT conditions, and the approach varies by age. In children, adenoid hypertrophy is a common cause. We generally take a conservative approach, as the condition peaks around 6-7 years and usually regresses with time. However, frequent night awakenings can affect concentration and performance in school. Hearing loss from otitis media may be misinterpreted as inattentiveness in class. In adults, issues like DNS, tonsillar hypertrophy, and systemic conditions like obesity, hypertension, and/or diabetes often contribute to sleep disorders. Lifestyle modifications and addressing underlying causes are prioritised before considering surgical modalities. Sleep studies are conducted—either in the hospital or at home—by monitoring the ECG, EEG, BP, and other parameters. The first half is diagnostic, followed by a titration phase where a CPAP machine is used to assess response, which pushes air into the patients' airway to keep it patent. Although the acceptance of CPAP therapy is relatively low, it proves beneficial in severe cases.

5) Could you highlight some sleep-related symptoms that may suggest an underlying ENT disorder?

One commonly overlooked symptom is dry cough, especially when it occurs only at night. Patients often attribute it to a general medicine issue, but in many cases, it may be due to nasal polyposis and postnasal drip which worsens on lying down. Although sleep disorders are not always immediately linked to ENT, they often have ENT-associated causes. This is because our specialty shares responsibility for the airway with the internal medicine and anaesthesia departments, making collaboration essential in diagnosis and management.

6) What is the role of the ENT specialists in maintaining sleep quality in patients?

The first step is to rule out any organic lesions like nasal polyps or DNS, as no treatment will be effective unless these underlying issues are addressed. Systemic conditions like obesity, diabetes, and others must also be managed concurrently. Additionally, we encourage patients to practice breathing exercises to help them overcome mouth breathing, which sometimes persists even after the primary condition has been resolved.

7) How has treatment regarding these conditions changed over the years?

Several new treatment modalities are emerging. The CPAP machine is steadily gaining popularity as a non-invasive option. On the surgical front, advancements include using barbed sutures in oropharyngeal muscles to improve airway patency. In cases like adenoid or base of the tongue hypertrophy, traditional cold steel instruments are being replaced by more advanced techniques such as ablation and microdebridement, which offer bloodless surgeries and faster recovery time.

A growing number of sleep surgeons now specialise exclusively in these surgeries, playing a key role in determining when conservative management is no longer sufficient and surgical intervention becomes necessary.

8) Many ENT conditions are considered preventable. Could you share some preventive measures for ENT-related diseases that commonly affect sleep?

Many ENT-related problems can be prevented through simple lifestyle choices. Avoiding smoking and excessive alcohol is very important, as both can worsen snoring and sleep apnoea by relaxing the airway muscles. Protecting our ears from excessive noise is equally crucial. During festivals like Diwali, noise levels often exceed safe decibel limits, putting people at risk of permanent noise-induced hearing loss. Both authorities and individuals need to be mindful of noise pollution and take appropriate measures to curb it.

9) We have observed your brilliant performance in debates and public speaking events. Would you like to tell us more about how you developed this interest?

When I was in school, I did not know how to sing or dance, but I still wanted to be heard. That is what drew me to debating. It taught me so much: how to see issues from different perspectives, how to challenge my own thinking, and most importantly, how to speak up with confidence. It also sharpens the ability to present arguments persuasively – an invaluable skill in any field. I truly believe that everyone should take up some form of extracurricular activity—whether it is debating or something else—because it helps you grow in ways that academics alone cannot.



Pigment



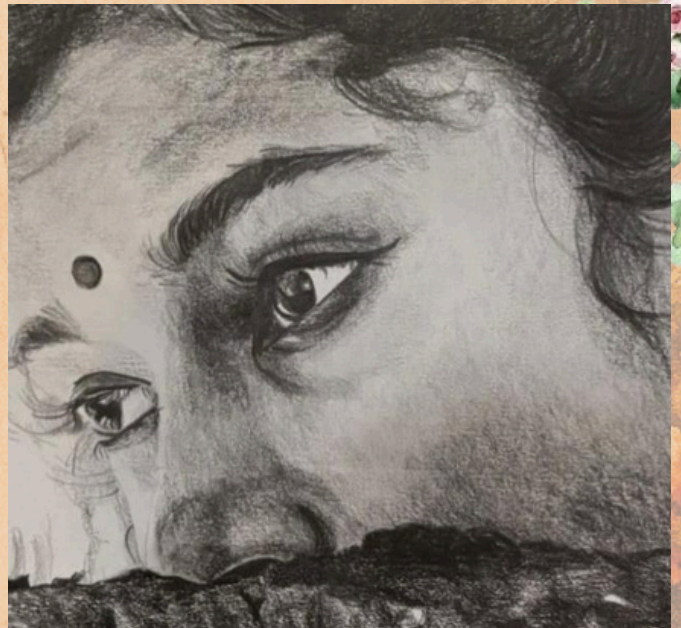
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Sleep is an integral part of our day-to-day functioning. It replenishes energy stores, consolidates memory, regulates various hormones, and also repairs damaged tissues. A good amount of sleep ensures proper mental and physical health, whereas poor quality sleep puts one at risk of obesity, diabetes, heart disease, and even weakens immunity. Simply put, sleep is a necessity for a healthy life.

This article aims to bring light to one of the most common yet serious sleep disorders known as Obstructive Sleep Apnea (OSA). Studies estimate that as many as 1 billion adults worldwide between the ages of 30-69 years suffer from some form of OSA. Of this, around 425 million people suffer from moderate to severe disease that often requires active treatment. The pathophysiology involves repeated collapse of the upper airway during sleep, which blocks airflow and lowers oxygen levels. Our brain responds to this by waking us up for a brief duration in order to resume breathing, leading to disturbed sleep. OSA presents with loud snoring, morning headaches, daytime sleepiness, and is strongly linked with hypertension, stroke, type 2 diabetes, and poor quality of life. It not only affects the sleep of the one suffering, but also the sleep of their partners.

OSA till now has largely been managed with continuous positive airway pressure (CPAP) therapy, which is the gold standard for OSA. This delivers pressurized air to keep the airway open during sleep. While it is effective, most patients struggle with the discomfort and noise associated, and show poor long-term adherence. Other treatment modalities, such as mandibular advancement devices, work in mild to moderate cases but show less reliability in severe OSA. Some lifestyle measures, like weight loss, exercise, and avoiding alcohol help, but are rarely sufficient alone. Lastly, surgical options such as uvulopalatopharyngoplasty (UPPP) or maxillomandibular advancement (MMA) are available, but are invasive with variable outcomes. These limitations opened new avenues for the development of novel treatment options that are more patient-friendly.



One such innovation is hypoglossal nerve stimulation (HGNS). It is an implantable device that detects every breath and delivers gentle electrical impulses to the hypoglossal nerve, which is responsible for the movement of the tongue. It also prevents the tongue from blocking the airway during sleep. Inspire device, an FDA-approved product, consists of a breathing sensor near the ribs, a pulse generator in the chest, and an electrode around the hypoglossal nerve. It is controlled by a handheld remote. Every breath stimulates the tongue forward, keeping the airway open. HGNS reduces snoring, gasping, and choking, and helps restore natural sleep. Clinical trials show that it lowers the Apnea-Hypopnea Index (AHI) by nearly 20 events/hour short-term and 16/hour long-term, improves oxygen levels, reduces daytime sleepiness (Epworth Sleepiness Scale by around 5 points), and enhances quality of life.

Another exciting development is in the pharmacotherapy domain for the treatment of OSA. Zepbound (tirzepatide) is a dual incretin agonist that targets GLP-1 and GIP receptors. Initially, it was developed for diabetes and obesity, where it reduces appetite and food intake, leading to significant weight loss, a major factor in OSA improvement. Zepbound recently received approval for moderate to severe OSA in adults with obesity, supported by two large randomized, double-blind, placebo-controlled trials involving 469 adults without type 2 diabetes. Over 52 weeks, weekly injections of tirzepatide (10-15 mg) produced a clinically meaningful reduction in AHI, with many patients achieving remission or only mild OSA. Weight loss ran parallel to these improvements, highlighting the strong obesity-OSA link.

With such advances, the future of OSA care looks promising with treatments that move us beyond the limitations of traditional therapy and bring about more effective, sustainable, and patient-friendly treatment modalities.



LUCID DREAMING

—Nilay Dhage, III/I M.B.B.S., M.I.M.E.R. Medical College, Pune

When I was a preschooler, I experienced night terrors. I would suddenly wake up terrified, cry out loud, and cling to my parents until I eventually drifted back to sleep. These episodes lasted for three to four years before resolving on their own. Ever since, I have been curious about sleep and dreaming, and that early experience sparked my ongoing interest in learning about them.

Dreams are perhaps the most remarkable ongoing experiments in psychology and neuroscience, occurring every night in every sleeping person. They show that the brain, even when disconnected from the external world, can generate an immersive world of conscious experience. Dreams are highly visual, often in full color, rich with shapes, movement, and familiar faces, places, and objects—features we usually associate with waking perception. They often incorporate sounds like speech, tactile sensations, and even pleasure and pain. Dreams reflect our personality, emotions, concerns, interests, thoughts, and the people on our minds, making dreaming a continuation of our psychological landscape even while asleep. Despite these similarities to waking life, dreams differ in remarkable ways: we experience reduced attention, weakened voluntary control, distorted reflective thinking, intensified emotions, and impaired memory.

A key difference between dreaming and waking life is the lack of self-awareness. Yet, many people have experienced moments when they realise they are dreaming while still inside the dream. This is lucid dreaming (LD): a state, usually during REM sleep, in which the dreamer becomes aware of dreaming and may even exert control over the dream. Studies show that around half the population has had at least one lucid dream in their lives.

Reactions to lucid dreams vary. Some people become so surprised by this hybrid sleep-wake state that they wake up, akin to night terrors. Others manage to stay calm and take control. Lucid dreaming has fascinated humans for centuries.

It appears in ancient religious and philosophical traditions, and is now the subject of serious scientific investigations. Interest in LD has surged in recent years, partly due to representations in popular media. A study found that 35% of first-year psychology students had attempted to induce a lucid dream at least once. Recent research focuses on inducing LD, and its appeal seems linked to the opportunity it offers for entering an altered state of consciousness without external substances. In this state, dreamers can explore impossible experiences like flying or manipulating time, simply by controlling their dream environment. Because spontaneous LDs are rare, deliberate induction techniques are increasingly studied. While research is still developing, evidence suggests that LD may offer unique psychological and practical benefits—but also risks, especially when induced.

One promising application is nightmare treatment: Lucid Dream Therapy (LDT) teaches individuals to recognize and reshape their dreams. For instance, someone plagued by recurring chase dreams might learn to stop running and face the pursuer, reducing both nightmare frequency and emotional distress. Beyond therapy, LD seems to enhance certain skills: athletes practicing motor tasks like dart throwing or gymnastics sequences, in lucid dreams, show measurable improvements when awake. On a personal level, LD fosters psychological growth, offering a safe space to confront fears or gain emotional insight. However, these benefits come with caveats. Induction techniques often disturb sleep, and frequent lucidity may disrupt REM cycles, leaving dreamers less rested. For vulnerable individuals, LD could blur the boundaries of reality, worsening anxiety, dissociation, or psychosis. Some may overuse LD as escapism, preferring dream worlds over real-life challenges.

In summary, lucid dreaming offers exciting possibilities for healing, creativity, and self-discovery, but its promise is matched by the need for caution. Sleep and dreaming remain some of the most intriguing and least understood aspects of the human mind. Lucid dreaming reminds us that the mind holds infinite worlds within—spaces where imagination, healing, and self-discovery become limitless.



CORTEX

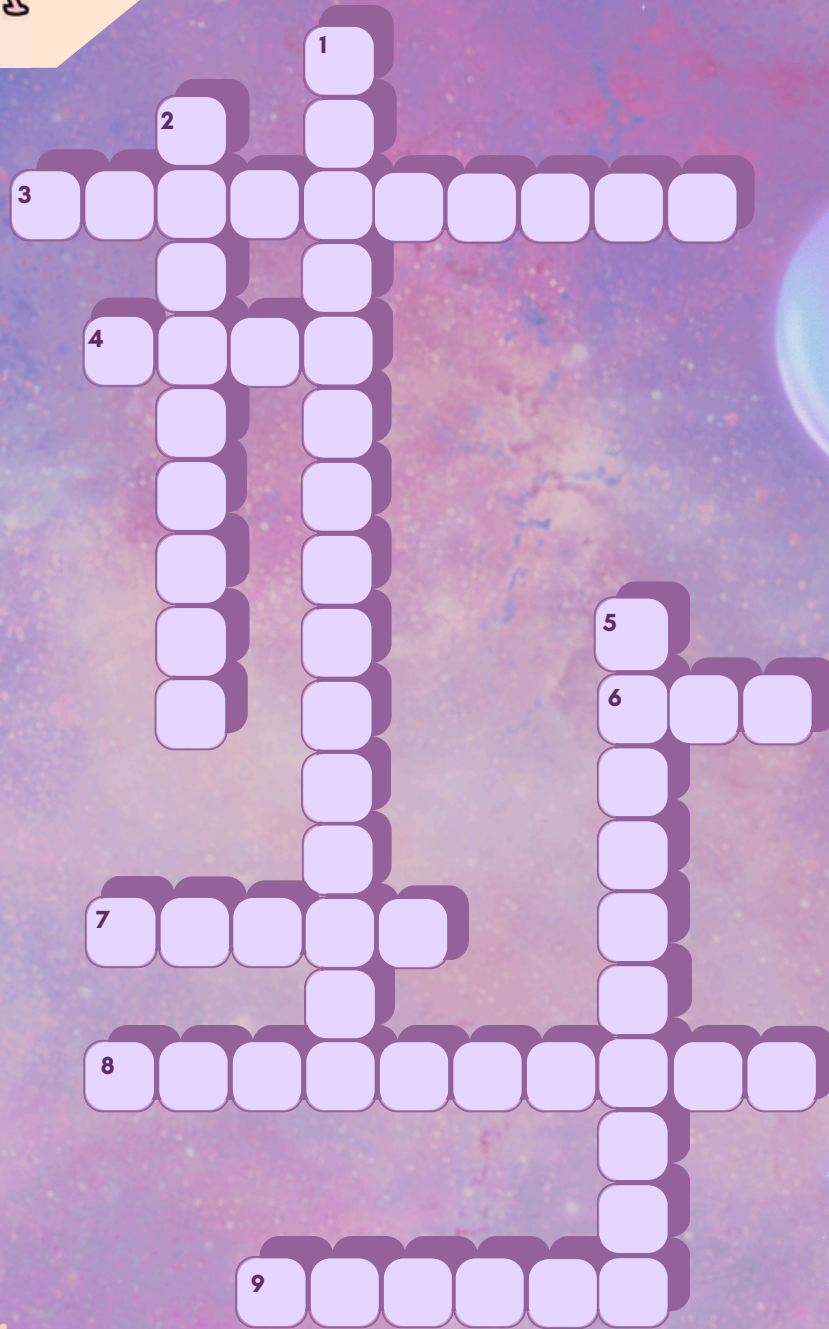


ACROSS

3. A disorder where there are repeated pauses in breathing during sleep
4. Neurotransmitter enhanced by benzodiazepines to promote sleep
6. Stage of sleep where memory gets consolidated
7. Waves seen in deep (N3) sleep
8. A sleep disorder that is often mistaken for laziness, characterised by sudden daytime sleep
9. Wake-promoting neuropeptide absent in narcolepsy

DOWN

1. Hypothalamic nucleus that acts as the body's "master clock."
2. Disorder where people act out their dreams REM sleep ____ disorder
5. "Sleepy" amino acid found in milk.



VOICES FROM THE WARD



Mrs. Sapna Vidhate, nurse in the Department of Radiodiagnosis at Pravara Rural Hospital, Loni for the past 13 years

In conversation with Nitty Modi, III/I M.B.B.S., Rural Medical College, Loni

1) What made you choose nursing as a career?

Before I became a nurse, I worked as an ASHA worker for four years. That experience taught me what sevabhaav (servitude) is and the amount of satisfaction it brings me. I realised that to serve others is probably the greatest virtue—to be there for people in the community when they need care and guidance. This servitude stayed with me and pushed me to pursue a bachelor's degree in nursing. Today, I work as a staff nurse at PRH. I feel proud to have turned that calling into a profession.

1) What does a typical day look like for you?

My day begins at 5:00 in the morning. I wake up early, prepare breakfast, and set everything up for my children and husband before I leave. By 7:00, I'm on my way to the hospital.

Once my shift starts, the hours are packed. Our department is the busiest in the hospital. There is no concept of rush hour, as the entire day is pretty busy. Despite this, somehow, time flies.

3) What is the most challenging part of your job?

Although the physical workload does get heavy, it is not the most challenging. The constant change—how no day is the same, how no patient is the same—usually affects me more. Adapting quickly while still giving the best care is not easy, but with time, you learn how to deal with it.

4) What do you wish medical students and doctors understood better about nurses?

We are not just “helpers”. We observe patients round the clock, notice the smallest changes, and often detect complications early. Teamwork improves significantly when doctors listen to nurses' inputs with the same respect they give to colleagues. Our role involves much more than following instructions. We stay with the patients through the day (and night), so we are often first to notice subtle changes that may not be obvious during rounds. Many times, it is a nurse who first notices a warning sign or complication. It is the duty of the doctors to make us feel like a valued part of the team; only then can we give our best to the patient. What we truly appreciate is mutual respect.

5) What is your advice to the medical students reading this?

The most important thing is to be humble and approachable. Patients look up to you as doctors, but they are also scared and confused, and in pain. A kind word, gentle explanation, or just listening for a minute can go a long way. Remember that healthcare is never a one-person job. If you treat your nurses, ward staff, and even the housekeeping team with respect, you will find that your work becomes lighter and more effective. Lastly, take care of yourself. I have seen so many students starving, sleep-deprived, and still pushing through rounds. This profession demands long hours and a lot of sacrifice, but if you keep your compassion alive, you will never regret choosing it.

Shutterbug



**Dr. Ruturaj Desai, Pharmacology resident
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DREAMER

**-Rabee Ansari, III/I M.B.B.S.,
M.I.M.E.R. Medical College, Pune**

All my childhood, I used to dream,
Of starry skies and warm sunlight's beam.
A world where all wishes come true,
And life would unfold as I pursue.

I thought that being old and free,
Was all this world could offer me,
That every hardship would find its peace,
And all my ecstasy would never cease.

Now here I stand, the years have flown,
The boy is gone, the man has grown,
Those innocent dreams now gently fade,
Displaced by dues the world has paid.

Now the world is asleep, but I am not,
Hinged to the thoughts, my mind has caught.
The clock keeps mocking with each tick,
Night widens more, and shadows align thick.

The city sleeps beneath those very skies,
While I lie awake at the back of my eyes.
Some battles end when dawn breaks,
Worst comes at night, that the mind makes.

I laugh at him—that swift little boy,
Who thought life was an infinite joy,
He never knew the risk and cost,
Of things you win, and things you've lost.
That's life's cruel twist of irony,
Can't let a man reclaim his symphony.

Yet somewhere deep, he's left behind,
In quiet corners of my scattered mind,
A whisper that ignites the drive,
"Dream all again... it keeps you alive."

Behind the Stethoscope



I have been practicing for over 29 years, but one case from the early years of my career stands out. A young woman came to me with persistently high blood pressure. Despite following every recommendation—exercise, lifestyle changes, salt reduction, and medication—nothing seemed to help. Her BP remained stubbornly high. At first, I suggested a more stringent diet (including the DASH diet) and adherence to medication, but something didn't feel right. Given her age and the severity of her hypertension, I wondered if there was something deeper at play.

After much thought, I suggested a kidney function test, though she was hesitant. She feared it might be heart-related, and no other doctor had considered her kidneys as the cause. I insisted, and she reluctantly agreed. When the results came back, I was shocked—her creatinine levels were alarmingly high. Further investigations, including a consult with a nephrologist, revealed that she was in renal failure. Her hypertension was caused by kidney dysfunction, not stress, poor diet, or genetics, as we had initially thought.

Thanks to early intervention, she was able to receive a kidney transplant. Even now, years later, she occasionally reaches out to thank me for insisting on that test, as it likely saved her life. As doctors, we are trained to follow proper protocol, but trusting one's intuition, even when it challenges the obvious or unexpected, is an integral part of being a good doctor. This case reinforced for me that knowledge coupled with instinct can truly make a difference in our patients' lives.

-Dr. Rujuta Shinde, M.B.B.S.

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