



Prevalence and Patterns of Sleep Disturbances Among Doctors in a Tertiary-Care Institution: A Cross-sectional Survey

Üçüncü Basamak Bir Sağlık Kurumunda Hekimler Arasındaki Uyku Bozukluklarının Prevalansı ve Örüntüleri: Kesitsel Bir Araştırma

✉ Jayakumar Rajagopal, ✉ Tharini Guru, ✉ Roopa Kancherla, ✉ Gayathri Sivakumar

PSG Institute of Medical Sciences and Research, Department of Respiratory Medicine, Coimbatore, India

Abstract

Objective: Sleep disturbances are common among healthcare professionals and have profound implications for their health and performance. However, data capturing a wide range of sleep disorders among medical personnel in India are limited. The lack of routine screening and institutional emphasis on sleep hygiene adds to the risk.

Materials and Methods: This cross-sectional study was conducted between October 2023 and January 2024 at PSG Institute of Medical Sciences and Research, Coimbatore. Doctors of all designations were surveyed using a 26-item self-report questionnaire based on the International Classification of Sleep Disorders, 3rd edition. Collected responses were statistically analyzed using IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY). Face-to-face clinical evaluation or polysomnography was not performed.

Results: A total of 252 doctors participated (mean age 30.4 ± 6.1 years; 56% female). The most prevalent sleep complaints were insufficient sleep (93.7%), insomnia (88.6%), and circadian rhythm disturbances (88.6%). Females had significantly more symptoms of parasomnias and insomnia, while males more frequently reported symptoms suggestive of sleep-disordered breathing (snoring, witnessed apnea, dry mouth on waking). Younger professionals (<30 years) had a greater burden of symptoms. Comorbidities included hypothyroidism (13%), diabetes (10%), and hypertension (7%).

Conclusion: Although the lack of polysomnographic confirmation limits diagnostic certainty, sleep disturbances appear to be highly prevalent among doctors, especially early-career professionals. Institutional-level reforms in shift scheduling, screening, and sleep-health education are urgently warranted to preserve workforce health and patient safety.

Keywords: Sleep disorders, insomnia, medical workforce, occupational health, India

Öz

Amaç: Uyku bozuklukları sağlık çalışanları arasında yaygın olup sağlıkları ve mesleki performansları üzerinde önemli etkilere sahiptir. Bununla birlikte, Hindistan'daki sağlık personelinde geniş bir uyku bozukluğu yelpazesini değerlendiren veriler sınırlıdır. Rutin taramaların yapılmaması ve kurumlarda uyku hijyenine yeterince önem verilmemesi riski daha da artırmaktadır.

Gereç ve Yöntem: Bu kesitsel çalışma, Ekim 2023 ile Ocak 2024 tarihleri arasında Coimbatore'daki PSG Tıp Bilimleri ve Araştırma Enstitüsü'nde gerçekleştirilmiştir. Tüm unvanlardaki hekimlere, Uyku Bozukluklarının Uluslararası Sınıflandırması, 3. baskıya dayalı 26 maddelik bir öz bildirim anketi uygulanmıştır. Elde edilen yanıtlar, IBM SPSS Statistics for Windows, sürüm 26.0 (IBM Corp., Armonk, NY) kullanılarak istatistiksel olarak analiz edilmiştir. Yüz yüze klinik değerlendirme veya polisomnografi uygulanmamıştır.

Bulgular: Çalışmaya toplam 252 hekim katılmıştır (ortalama yaş: $30,4 \pm 6,1$ yıl; %56'sı kadın). En yaygın uyku yakınmaları yetersiz uyku (%93,7), insomnia (%88,6) ve sirkadiyen ritim bozuklukları (%88,6) olarak belirlenmiştir. Kadınlarda parasomni ve insomnia belirtileri anlamlı düzeyde daha fazla görülürken, erkeklerde uykuda solunum bozukluğunu düşündüren horlama, tanıklı apne ve sabah ağız kuruluğu gibi belirtiler daha sık bildirilmiştir. Genç hekimlerde (<30 yaş) belirti yükünün daha yüksek olduğu saptanmıştır. Eşlik eden hastalıklar arasında hipotiroidi (%13), diyabet (%10) ve hipertansiyon (%7) yer almıştır.

Sonuç: Polisomnografik doğrulamanın bulunmaması tanılal kesinliği sınırlandırmakla birlikte, uyku bozukluklarının özellikle meslek yaşamının ilk dönemlerindeki hekimler arasında oldukça yaygın olduğu görülmektedir. Sağlık çalışanlarının sağlığını ve hasta güvenliğini korumak amacıyla vardiya düzenlemeleri, tarama programları ve uyku sağlığı eğitimleri konusunda kurumsal düzeyde reformların acilen hayata geçirilmesi gerekmektedir.

Anahtar Kelimeler: Uyku bozuklukları, insomnia, sağlık çalışanları, iş sağlığı, Hindistan

Address for Correspondence/Yazışma Adresi: Jayakumar Rajagopal, PSG Institute of Medical Sciences and Research, Department of Respiratory Medicine, Coimbatore, India

E-mail: drjrkulmo@gmail.com **ORCID-ID:** orcid.org/0000-0003-0963-0052

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Introduction

Sleep is a fundamental biological process essential for human health and well-being (1). It is particularly crucial for cognitive performance, emotional regulation, and physiological restoration. In high-stakes professions such as medicine, adequate sleep becomes even more critical, as sleep deprivation can impair clinical judgment, compromise patient safety, and affect the overall quality of care (2). Healthcare professionals often operate in high-pressure environments with irregular schedules, night shifts, and demanding workloads, which collectively disrupt circadian rhythms and negatively impact sleep quality (3). Studies globally have shown that doctors, nurses, and allied healthcare workers are disproportionately affected by sleep disturbances, with long-term consequences to both their physical and mental health (4). Despite these concerns, sleep health among Indian healthcare professionals has not received adequate attention in research (5). Most Indian studies have focused on medical interns or emergency staff, leaving a considerable gap in understanding how sleep disorders affect different tiers of the medical hierarchy across departments.

The current study addresses this gap by providing a comprehensive, symptom-based analysis of sleep disturbances among doctors in a major tertiary-care teaching hospital in India, using the International Classification of Sleep Disorders, 3rd edition (ICSD-3) (6). By examining multiple sleep domains and correlating them with demographic variables, we sought to identify high-risk groups and propose targeted interventions. A secondary aim was to highlight occupational and systemic contributors to poor sleep, which are currently under-recognized.

Materials and Methods

This cross-sectional observational study was conducted between October 10, 2023 and January 31, 2024 at PSG Institute of Medical Sciences and Research, a 1400-bed tertiary-care teaching hospital in Coimbatore, Tamil Nadu, India. The study population comprised all categories of medical professionals at the institution, including compulsory rotating residential interns (CRRIs), junior residents, and faculty members (senior residents, assistant professors, associate professors, professors, and consultants) across both clinical and preclinical departments. Data were collected through an anonymous online survey administered via Google Forms. Participation was voluntary, and informed consent was obtained digitally prior to commencement of the survey.

The questionnaire consisted of 26 items adapted from the ICSD-3, encompassing 7 major domains of sleep dysfunction: insufficient sleep, insomnia, circadian rhythm disorders, parasomnias/rapid eye movement (REM)-related disturbances, sleep-disordered breathing (SDB), movement disorders, and excessive daytime sleepiness (EDS). Each item was scored using a five-point Likert scale, ranging from “Never” to “ ≥ 3 times per week.”

Demographic variables included age, sex, professional designation, departmental affiliation, and presence of self-reported chronic comorbidities. Variables such as work hours,

shift schedule, screen use before bed, family stress, smoking/alcohol use, or physical activity were not included and represent an important limitation in interpreting the results. Similarly, parameters such as usual bedtime, wake time, and total sleep duration were not assessed.

The study received ethical clearance from the PSG Institute of Medical Sciences and Research Institutional Ethics Committee (IEC no: 2023/457, date: 06.10.2023) and adhered to guidelines set forth by the Indian Council of Medical Research.

Statistical Analysis

Survey responses were exported to IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY) for analysis. Descriptive statistics were used to summarize the prevalence of sleep-related symptoms. Associations between demographic variables and symptom categories were evaluated using chi-square (χ^2) tests. A p-value of <0.05 was considered indicative of statistical significance.

Results

A total of 252 completed responses were included in the final analysis, representing a 90% response rate (Figure 1). The mean age was 30.4 ± 6.1 years, with a median age of 29. Females constituted 56% of the sample. CRRIs were the largest group (43.7%), followed by junior residents (15.1%), faculty members (20.6%), and consultants (18.3%).

Overall, 93.7% of respondents reported symptoms of insufficient sleep, and 88.6% reported symptoms consistent with insomnia. Circadian rhythm disturbances were reported by 88.6% of doctors, followed by parasomnias (70.9%), symptoms suggestive of SDB (62.2%), movement disorders (34.5%), and EDS (27.8%). A striking observation was that nearly 77% of respondents reported disturbances across at least three domains.

Statistically significant sex-based differences were observed in the prevalence of insufficient sleep (females 98.6% vs. males 89.3%, $p = 0.003$) and parasomnias (females 79.3% vs. males 61.6%, $p = 0.003$). Females also reported more insomnia, although the difference was not significant (91.4% vs. 85.5%, $p = 0.16$). Conversely, male doctors had a higher prevalence

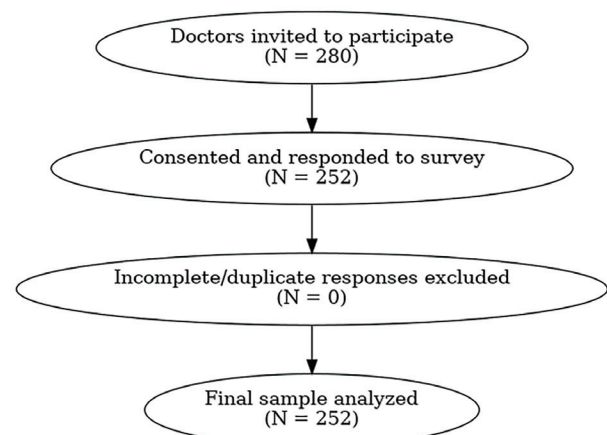


Figure 1. Participant flowchart.

of SDB symptoms (75.0% vs. 52.9%, $p = 0.001$), including snoring and dry mouth on waking.

Age-based trends revealed that younger doctors, particularly those below 30 years of age, were most affected, with a symptom prevalence as high as 96.5% for insufficient sleep. Those aged ≥ 50 years had significantly lower prevalence across most domains. Additionally, interns and junior residents were disproportionately affected, reporting the highest burden of symptoms.

Comorbid conditions such as diabetes, hypothyroidism, and hypertension were present in 26.5% of participants and showed significant association with insomnia and SDB symptoms.

Tables 1 and 2 present the demographic breakdown and domain-based prevalence of reported symptoms, respectively. Figures 2 through 5 visually summarize symptom frequencies, sex-wise differences, comorbidities, and designation-based trends.

Table 1. Demographic characteristics of participants (n = 252).

Variable	Value
Age (years), mean $\pm$ SD (median)	30.4 $\pm$ 6.1 (29)
Age range (years), n (%)	
<30	134 (53.2)
30–39	66 (26.2)
40–49	34 (13.5)
≥ 50	18 (7.1)
Sex, n (%)	
Male	111 (44.0)
Female	141 (56.0)

SD: Standard deviation.

Table 2. Prevalence of sleep symptom domains.

Sleep domain	n (%)
Insufficient sleep	236 (93.7)
Insomnia	223 (88.6)
Circadian rhythm disturbances	223 (88.6)
Parasomnias/REM-related symptoms	178 (70.9)
Sleep-disordered breathing	157 (62.2)
Movement disorders	87 (34.5)
Excessive daytime sleepiness	70 (27.8)

REM: Rapid eye movement.

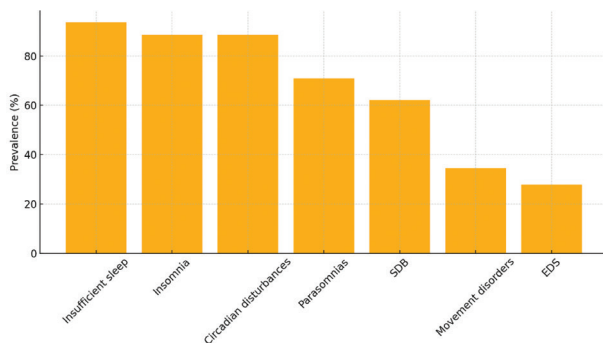


Figure 2. Overall prevalence of sleep disturbance domains.
SDB: Sleep disordered breathing, EDS: Excessive daytime sleepiness.

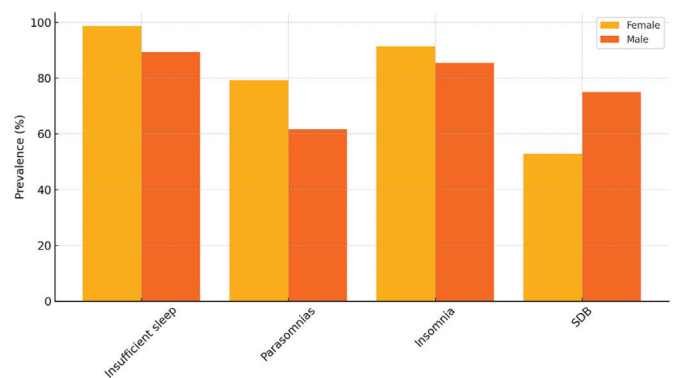


Figure 3. Sex-wise differences in sleep symptom prevalence.
SDB: Sleep-disordered breathing.

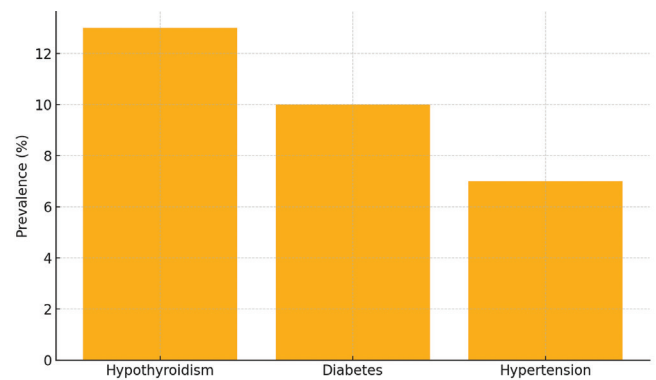


Figure 4. Frequency of reported comorbidities.

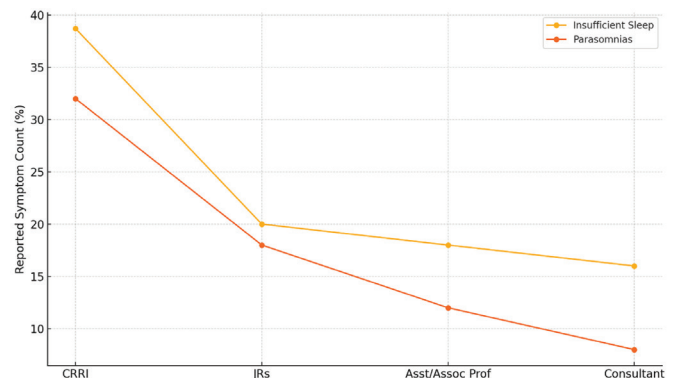


Figure 5. Symptom distribution by professional designation.
CRRI: Compulsory rotating residential interns, JRs: Junior residents.

Discussion

This study reveals a strikingly high prevalence of sleep disturbances among doctors in a large tertiary-care academic hospital in India. The most frequently reported symptoms were insufficient sleep and insomnia, each affecting over 88% of respondents. These findings are consistent with global literature indicating that healthcare workers are disproportionately

affected by sleep-related complaints due to extended shifts, erratic working hours, and high occupational stress (3-5).

Our data show that younger doctors, particularly those under the age of 30, report the highest burden of symptoms. This is likely due to inflexible and demanding work schedules, which often include prolonged overnight duties and academic obligations. Similar age-related findings have been reported in other studies, underscoring the need for policy interventions early in medical careers (4).

Sex-wise differences were notable. Female doctors had a higher prevalence of insufficient sleep, insomnia, and parasomnias. This finding may reflect both biological (e.g., hormonal) and psychosocial (e.g., dual responsibilities of work and home) contributors to sleep fragmentation and poor sleep quality (7,8).

In contrast, male doctors exhibited greater prevalence of symptoms suggestive of SDB, consistent with known anatomical and behavioral risk factors (9). However, it should be noted that these symptoms were not confirmed with polysomnography.

Another important observation was the high burden of symptoms across multiple domains. More than three-quarters of respondents reported disturbances in at least three symptom categories. This clustering increases the likelihood of cumulative negative effects on cognitive functioning, psychomotor performance, and emotional regulation—all of which are vital for medical decision-making and patient safety (4,10).

Comorbid conditions such as hypothyroidism, diabetes mellitus, and hypertension were common among the study population. These conditions are both influenced by and contributors to sleep dysfunction, suggesting a bidirectional relationship that merits integrated management strategies (4,11).

Compared to Western data, the prevalence of parasomnias and circadian misalignment was relatively high. In a Turkish sample during the coronavirus disease-2019 pandemic, poor sleep quality was reported in 55% of physicians, comparable to our findings, and was significantly associated with female sex, frontline worker status, low social support, and heightened stress levels (12). This could reflect cultural and systemic differences in healthcare delivery, including more frequent night duties, higher patient loads, and limited institutional emphasis on sleep hygiene in the Indian context (3,9).

Study Limitations

This study has several limitations. It was conducted in a single tertiary-care center, which may limit the generalizability of the findings. Data were self-reported and may be affected by recall bias. As a cross-sectional study, it cannot establish causality. The questionnaire, though based on ICSD-3 criteria (6), is not a validated diagnostic tool. Polysomnography and clinical examination were not performed. Other sleep-related factors such as bedtime, sleep latency, nocturnal awakenings, and screen time before bed were also not assessed, and the participants' work schedules and shift timings were not recorded. Moreover, although lifestyle-related factors (e.g., smoking, alcohol, caffeine use, mobile device usage) can

strongly influence sleep, these were not assessed. Future studies should consider including these important determinants.

Conclusions

This study underscores the widespread and multidimensional burden of sleep disturbances among doctors, with younger age, female sex, and early-career professional status emerging as significant risk factors. The most prevalent disturbances identified were insufficient sleep, insomnia, and parasomnias/REM-related symptoms. These conditions frequently co-occurred and were often associated with underlying metabolic and endocrine comorbidities, highlighting the complex interplay between occupational stressors and sleep health.

Given the high prevalence and clinical relevance of these disturbances, there is an urgent need for institutional reforms to address this silent epidemic. Key recommendations include:

- Implementing duty-hour regulations to prevent chronic sleep deprivation,
- Integrating sleep health education into routine medical training and wellness programs,
- Periodic screening for sleep-related disorders among healthcare personnel, and
- Establishing dedicated sleep clinics to facilitate early diagnosis and intervention.

Recognizing sleep health as a fundamental component of clinician well-being is essential for sustaining a safe, efficient, and compassionate healthcare system. By prioritizing the sleep health of medical professionals, institutions can not only enhance clinician resilience and reduce burnout but also improve the quality of patient care through better attention, empathy, and clinical decision-making.

Ethics

Ethics Committee Approval: The study received ethical clearance from the PSG Institute of Medical Sciences and Research Institutional Ethics Committee (IEC no: 2023/457, date: 06.10.2023) and adhered to guidelines set forth by the Indian Council of Medical Research.

Informed Consent: Participation was voluntary, and informed consent was obtained digitally prior to commencement of the survey.

Footnotes

Authorship Contributions

Surgical and Medical Practice: J.R., T.G., R.K., G.S., Concept: J.R., R.K., Design: J.R., R.K., Data Collection or Processing: J.R., T.G., G.S., Analysis or Interpretation: J.R., T.G., R.K., G.S., Literature Search: J.R., T.G., G.S., Writing: J.R., T.G., R.K., G.S.

Conflict of Interest: No conflict of interest was declared by the authors.

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