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Wakefulness on Demand: The Use of Sleep Aids and Stimulants among Emergency Physicians in Saudi Arabia

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Abstract

Background: Emergency medicine (EM) physicians often work irregular shifts that can disrupt their circadian rhythms, leading to sleep deprivation. The use of sleep aids and stimulants to mitigate these effects is a growing concern. Yet limited data exist on the extent of and factors influencing their use among EM physicians, particularly in Saudi Arabia. **Objective:** This study aimed to describe the prevalence and types of pharmacological and non-pharmacological sleep aids and stimulants used by EM physicians in Saudi Arabia, explore the factors influencing their usage, and assess their impact on sleep quality and patient care. **Methods:** A cross-sectional, web-based survey was conducted among 198 EM physicians working in various hospitals across Saudi Arabia. The survey, developed by a certified sleep medicine physician, collected data on demographics, sleep patterns, the use of sleep aids and stimulants, and their perceived impact on patient care. The calculated target sample size was 375, with a 95% confidence level and a 4% margin of error. **Results:** Of the respondents, 53% reported using pharmacological sleep aids, with antihistamines being the most commonly used (64.8%). Non-pharmacological aids, such as watching television and reading, were used by 77.8% of participants. A significant correlation was found between the use of sleep aids and the presence of insomnia ($P \leq 0.0001$), as well as the belief that shift work negatively affects sleep ($P \leq 0.0001$). Additionally, 86.4% of participants used stimulants to maintain wakefulness, with caffeine being the most common stimulant (97%). Despite these high rates of sleep aid and stimulant use, only 9.5% of participants felt that sleep aids negatively affected patient care, and 5.5% expressed concern about stimulants impacting care quality. **Conclusion:** The use of sleep aids and stimulants among EM physicians in Saudi Arabia is

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prevalent, reflecting international trends. While insomnia and shift work-related sleep disruption were strongly linked to the use of these substances, demographic factors such as age, gender, and experience did not show significant correlations. The potential health risks of these practices and their impact on patient care warrant further investigation, and strategies to improve sleep hygiene and work schedules should be considered to mitigate the adverse effects of shift work.

Keywords

Emergency Medicine, Sleep Aids, Stimulants, Shift Work, Insomnia, Physician Health

1. Introduction

Emergency medicine (EM) shifts are characterized by erratic and unpredictable patterns, often spanning long hours and extending into the night. This irregular schedule leads to significant disruptions in circadian rhythms, resulting in chronic sleep deprivation [1]. Sleep deprivation among physicians, particularly in emergency medicine, has emerged as a growing concern due to its impact on both individual well-being and patient safety. In contrast to day workers, shift workers face considerable challenges in maintaining a regular sleep-wake cycle, often experiencing fragmented and insufficient sleep, which may contribute to cognitive fatigue, mood disturbances, and impaired decision-making [1].

Several studies have demonstrated that sleep deprivation among healthcare workers is linked to a higher incidence of medical errors, particularly in high-stakes environments such as emergency departments [2]. For example, physician fatigue has been shown to impair clinical judgment, reduce diagnostic accuracy, and increase the likelihood of procedural errors [2]. These adverse outcomes not only threaten the safety of patients but also place additional strain on healthcare systems. In addition to these professional risks, sleep deprivation has profound effects on physiological health, including disruptions in glucose metabolism, immune function, and cardiovascular health [2] [3].

In an effort to cope with sleep deprivation, many emergency medicine residents turn to pharmacological interventions such as sleep aids and stimulants. While some studies have examined the use of sleep aids among medical residents, the specific practices of emergency medicine physicians remain poorly understood [1]. The use of these substances can vary widely, with some physicians relying on over-the-counter medications while others may use prescription drugs or stimulants such as caffeine to maintain alertness during overnight shifts [1]. The potential benefits of these substances in mitigating fatigue and improving alertness are well documented; however, concerns remain regarding their long-term effects, including the risk of dependency, tolerance, and further disruption of natural sleep patterns [1].

Notably, factors such as age, gender, the presence of insomnia, and lifestyle habits, including caffeine consumption, are known to influence the frequency and type of sleep aids and stimulants used by physicians [1] [4]. However, comprehensive data on these patterns among emergency medicine physicians, particularly in regions such as Saudi Arabia, are limited [4].

This study aims to address this gap by examining the prevalence of sleep aid and stimulant use among emergency medicine physicians in Saudi Arabia. Furthermore, it seeks to explore the factors influencing their use and the potential impact on sleep quality, health outcomes, and the quality of patient care provided. Given the critical role of emergency medicine physicians in healthcare delivery, understanding these dynamics is essential for optimizing both physician well-being and patient safety.

2. Materials and Methods

This study employed a quantitative, observational, cross-sectional design to investigate the use of sleep aids and stimulants among EM physicians in Saudi Arabia, including both residents and attending physicians.

Operational definitions used in the survey were based on ICSD-3 criteria. Insomnia was defined as difficulty initiating or maintaining sleep for at least three nights per week, with associated daytime impairment. Whereas chronic insomnia was defined as these symptoms persisting for more than one month.

The target sample size was calculated to be 375 emergency medicine physicians, with a confidence level of 95% and a confidence interval of 4, based on an estimated population of 1000 physicians. Anticipating a non-response rate of 20%, the final sample size was adjusted accordingly.

Data were collected via a web-based survey, which was distributed through email and text messages to emergency medicine physicians across various healthcare institutions in Saudi Arabia. The survey, originally developed and validated by a certified physician in sleep medicine with the American Board of Sleep Medicine [1], was modified slightly to account for cultural differences and the local context.

The web-based questionnaire consisted of four sections:

1) Demographics and Personal Information: This section collected data on the physician's age, gender, living situation, and years of experience in emergency medicine.

2) Sleep Quality and Shift Work: This section addressed the effects of shift work on sleep patterns, factors influencing sleep quality, and the presence of insomnia among the participants.

3) Use of Sleep Aids and Stimulants: The third section focused on the frequency and types of sleep aids and stimulants used by emergency medicine physicians.

4) Impact on Patient Care and Circadian Misalignment: The final section explored the perceived effects of sleep disturbances on patient care and the potential strategies to address circadian misalignment.

Prior to the main data collection, a pilot study was conducted with 20 partici-

pants to assess the clarity, reliability, and cultural appropriateness of the survey instrument. Ethical considerations included maintaining participant anonymity, ensuring that no incentives or rewards were offered, and declaring that no conflicts of interest existed. Ethical approval for the study was obtained from the relevant institutional review boards.

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS, SPSS Inc., Chicago, IL, USA). Descriptive statistics were calculated for all demographic and categorical variables. To assess the relationships between nominal variables, a one-way analysis of variance (ANOVA) was employed.

Ethics Approval and Consent to Participate

The study was conducted under the Declaration of Helsinki and approved by the Institutional Review Board (IRB) of King Saud University, College of Medicine, Riyadh, Saudi Arabia. Informed consent was obtained from all participants.

3. Results

Data were collected from 198 emergency physicians in Saudi Arabia, with 69.7% of the sample being male. The highest percentage of participants (40.9%) fell within the 30 - 39-year age range. Regarding living situation, 49.5% of participants reported residing with their spouse/partner and children (Table 1).

Table 1. Demographic characteristics of EM physicians in Saudi Arabia. The table presents the distribution of participants by age group, gender, and current living situation. The largest age group was 30 - 39 years (40.9%), followed by 20 - 29 years (33.8%). A majority of participants were male (69.7%). Regarding living situations, the most common arrangement was living with a wife/husband and children (49.5%), while 34.3% lived alone.

	Demographic characteristics of EM physicians	Frequency (%)
Age group	20 - 29 y	67 (33.8%)
	30 - 39 y	81 (40.9%)
	40 - 49 y	40 (20.2%)
	50 y+	10 (5.1%)
Gender	Male	138 (69.7%)
	Female	60 (30.3%)
Current living situation	Single (divorced–widowed) with children	8 (4.0%)
	Live alone	68 (34.3%)
	Lives with wife/husband only.	24 (12.1%)
	Living with wife/husband and children	98 (49.5%)

Upon analyzing the data, 53% (N = 105) of emergency medicine physicians reported using pharmacological sleep aids to facilitate sleep, while 47% (N = 93) indicated that they did not use any sleep aids. The frequency of use was as follows: 15.7% reported using sleep aids once a week, 7.1% twice a week, and 4% three times a week.

Antihistamines were the most commonly used sleep aid, with 64.8% (N = 68) of participants preferring this option. Melatonin followed as the second most commonly used sleep aid, with 51.4% (N = 54) reporting its use. Other sleep aids were used less frequently: herbal remedies (24.7%); analgesics (18.1%); benzodiazepines (14.3%); muscle relaxants (6.7%); and non-benzodiazepines (2.9%) (Table 2).

Table 2. Pharmacological sleep aids used by EM physicians in Saudi Arabia. The table shows the frequency and percentage of respondents who have ever used various pharmacological sleep aids to help them obtain sleep. Antihistamines (64.8%) were the most commonly used, followed by melatonin (51.4%) and analgesics (18.1%). Other substances, such as benzodiazepines, muscle relaxants, and non-benzodiazepine hypnotics, were used less frequently, with the lowest usage seen for barbiturates (2.86%). A notable proportion (24.76%) also reported using herbal medications.

Pharmacological sleep aids used by EM physicians	Frequency	Percent (%)
Melatonin	54	51.4
Benzodiazepines (lorazepam, etc.)	15	14.3
Antihistamines (diphenhydramine, etc.)	68	64.8
Muscle Relaxants	7	6.7
Analgesics (Tylenol 3, etc.)	19	18.1
Non-benzodiazepine hypnotics (Imovane, Ambient, etc.). Barbiturates (Amobarbital, Phenobarbital, etc.)	3	2.86
Herbal medications (Valerian, chamomile, etc.)	26	24.76
Others	7	6.7

Several factors showed significant correlations with the use of sleep aids. Participants who suffered from insomnia or chronic insomnia were more likely to use sleep aids, with 60% and 80.4% reporting use, respectively ($P \leq 0.0001$). Additionally, 61.6% of those who believed shift work negatively affected their sleep also used sleep aids ($P \leq 0.0001$). Conversely, variables such as age ($P = 0.196$), gender ($P = 0.108$), living situation ($P = 0.189$), and years of experience in emergency medicine ($P = 0.623$) were not significantly associated with sleep aid usage (Table 3).

Of those using pharmacological sleep aids, 50% reported using them to reset circadian rhythms or to restore a natural sleep cycle, while 32.7% used them to aid sleep irrespective of their shift schedule. Additionally, 29.6% used sleep aids specifically to sleep after night shifts, and 19.4% used them before night shifts. The remaining 8.2% did not specify their reasons for use.

Among participants using pharmacological sleep aids, 41.9% (N = 44) required a prescription, 41% self-prescribed, 13.6% obtained prescriptions from general practitioners or family doctors, 6.8% received prescriptions from colleagues, and 9.1% used a combination of prescriptions from both general practitioners and colleagues. The remaining 29.5% did not specify their sources.

Non-pharmacological sleep aids were used by 77.8% (N = 154) of emergency medicine physicians. Watching television and reading were the most common non-pharmacological methods, with 56.5% (N = 87) reporting their use. Other methods included sexual activity (46.1%), exercise (32.5%), meditation (17.5%), and yoga (5.2%) (Table 4).

Table 3. Correlation between the use of pharmacological sleep aids and factors affecting sleep quality among EM physicians in Saudi Arabia. The table presents the relationship between the use of pharmacological sleep aids (n = 105) and various factors, including the perception of shift work's impact on sleep, chronic insomnia, and past experiences with insomnia. A significant association was found between the use of sleep aids and the belief that shift work negatively affects sleep ($P < 0.0001$), as well as the presence of chronic insomnia ($P < 0.0001$). Additionally, 60% of those who reported using sleep aids had experienced insomnia during their medical careers, with a significant *P*-value ($P < 0.0001$) indicating a strong correlation.

Impact of shift work and insomnia on sleep quality among EM physicians	Use of pharmacological sleep aids in the medical career		
	Yes (n = 105)	No (n = 93)	*P*-value
Belief that shift work negatively impacts sleep:			
Yes	85 (61.6%)	53 (38.4%)	$P < 0.0001$
No	20 (33.3%)	40 (66.7%)	
Suffering from chronic insomnia (>1 month).			
Yes	41 (80.4%)	10 (19.6%)	$P < 0.0001$
No	64 (43.5%)	83 (56.5%)	
Experience of insomnia during a medical career:			
Yes	96 (60.0%)	64 (40.0%)	$P < 0.0001$
No	9 (23.7%)	29 (76.3%)	

Table 4. Use of non-pharmacological sleep aids during the medical career of EM physicians. The table presents the frequency of participants who have ever used various non-pharmacological methods, such as reading, watching television, or exercising, to assist with sleep.

Non-pharmacological sleep aids used by EM physicians	Frequency	Percent (%)
Watching television	87	56.5
Reading	87	56.5
Exercise	50	32.5
Sexual activity	71	46.1
Meditation	27	17.5
Yoga	8	5.2
Other	10	6.5

Regarding the use of stimulants, 86.4% (N = 171) of participants reported using

substances to maintain wakefulness during shifts. The frequencies of stimulant use were as follows: 64.1% used stimulants daily, 6.1% three times a week, and 5.1% once a week.

Caffeine was by far the most commonly used stimulant, with 97% (N = 167) of participants reporting its use. Nicotine was the second most commonly used stimulant (25.1%, N = 43), followed by energy drinks (21.1%) and herbal stimulants (3.5%) (Table 5).

Factors correlated with stimulant use mirrored those associated with sleep aid usage, including insomnia ($P = 0.045$), chronic insomnia ($P = 0.005$), and the perception that shift work negatively impacts sleep ($P = 0.002$). Age ($P = 0.479$), gender ($P = 0.152$), living situation ($P = 0.269$), and years of experience in emergency medicine ($P = 0.395$) were not significant factors in stimulant use (Table 6).

Table 5. Use of stimulants to maintain wakefulness during emergency shifts. The table shows the frequency of emergency medicine physicians who have ever used various stimulants, including caffeine, nicotine, and energy drinks, to help maintain alertness during shifts.

Stimulants used to maintain wakefulness	Frequency	Percent (%)
Caffeine	167	97.7
Herbals (Guarana, Ginseng, etc.)	6	3.5
Nicotine (cigarettes, gum, pipes, cigars)	43	25.1
Energy drinks (Rockstar, Red Bull, etc.).	36	21.1
Other	5	2.9

Table 6. Association between shift work, chronic insomnia, and sleep quality among EM physicians. The table shows the frequency of "Yes" and "No" responses regarding the impact of shift work on sleep, chronic insomnia (>1 month), and history of insomnia.

Shift work and insomnia impact on sleep.	Use of stimulants to maintain wakefulness-alertness during emergency shifts		
	Yes (n = 171)	No (n = 27)	*P*-value
Belief that shift work negatively affects sleep effectiveness:			
Yes	126 (91.3%)	12 (8.7%)	0.002
No	45 (75.0%)	15 (25.0%)	
Suffering from chronic insomnia (>1 month):			
Yes	50 (98.0%)	1 (2.0%)	0.005
No	121 (82.3%)	26 (17.7%)	
History of insomnia during the medical career:			
Yes	142 (88.7%)	18 (11.3%)	0.045
No	29 (76.3%)	9 (23.7%)	

Regarding the causes of sleep disturbances, 66.2% of participants attributed

their difficulties in initiating or maintaining sleep to circadian misalignment or day/night sleep reversal. Other factors included work hours or work demands (45.5%), emotional stress related to work (42.4%), family commitments (37.4%), and personal or family-related stressors (34.8%) (Table 7).

Table 7. Factors contributing to difficulty in initiating or maintaining sleep among EM physicians. The table shows the frequency of various factors, including shift work, emotional stress, family commitments, and work-related demands that participants identified as contributing to sleep difficulties.

Factors contributing to sleep disruption among EM physicians	Frequency	Percent (%)
Circadian misalignment or day/night sleep reversal	131	66.2
Family commitments	75	37.9
Personal or family-related stressors	69	34.8
Work-related emotional stress	84	42.4
Work hours/demands of work	90	45.5
Other	8	4.0

When asked about the impact of sleep aid and stimulant use on patient care, 9.5% (N = 19) of participants felt that the use of sleep aids negatively affected their ability to provide quality patient care, while 5.5% (N = 11) believed that stimulant use had a similar impact.

Finally, in addressing circadian misalignment, 57.6% of participants reported that taking regular vacations helped mitigate the effects of shift work. Other potential solutions included increasing the number of emergency department physicians (19.7%), changing the shift rota or rotating through other specialties for a period of time (14.1%), and other strategies (8.6%).

4. Discussion

This study aimed to examine the extent of sleep aid and stimulant use among EM physicians in Saudi Arabia and to explore the factors influencing their use. Our findings revealed that 53% of the physicians surveyed used pharmacological sleep aids to assist them in obtaining sleep. This figure is consistent with previous international research, which highlights the significant prevalence of sleep aid use among EM physicians. For instance, a 2018 Canadian study found that 67% of EM staff physicians had used pharmacological sleep aids at some point, with 56% actively using them [1]. Similarly, earlier studies on EM residents from 2006 and 2010 showed that 46% and 38%, respectively, reported using sleep aids [1] [5]. Additionally, Bailey and Alexandrov (2005) reported that 34% of Canadian EM physicians used sleep aids [4]. These findings underscore the global nature of sleep-related issues in emergency medicine and suggest that pharmacological sleep aid usage is a common coping mechanism for shift-related sleep disturbances.

Our data also indicated that antihistamines were the most commonly used sleep

aids among Saudi EM physicians, with 64.8% of participants reporting their use. This aligns with previous studies, in which antihistamines were the most frequently used sedative among EM residents [4] [5]. Antihistamines are often chosen for their sedative properties and their relatively low potential for dependence compared to other pharmacological options. Interestingly, our study found that non-benzodiazepines were the least used sleep aid, with only 2.86% of participants reporting their use. This contrasts with the findings of Francis *et al.* [1], who identified non-benzodiazepines and hypnotics as the most commonly used sleep aids among EM physicians in Canada. This discrepancy may reflect regional differences in medical practice, drug availability, and prescribing patterns. Non-benzodiazepines are often considered safer alternatives to benzodiazepines due to their lower risk of dependency, which may explain their popularity in Western settings, although they may not be as widely prescribed or used in Saudi Arabia.

While international studies have found significant associations between physician characteristics (such as gender and age) and the use of sleep aids [1] [4], our study did not find a significant correlation between these factors and sleep aid use. This may be attributable to the demographic makeup of our sample, in which 69.7% of the respondents were male. Gender imbalances in survey populations can lead to skewed interpretations of the influence of gender on sleep aid use. Furthermore, while age is often considered a risk factor for sleep disturbances in shift workers [4], our study found no correlation between age and sleep aid usage. These findings suggest that factors other than gender and age may be more critical in determining the need for pharmacological sleep aids in this population.

In contrast, we observed a significant correlation between the presence of insomnia and chronic insomnia, and the use of sleep aids. This is consistent with findings from previous studies, such as a 2018 survey of Canadian EM physicians, which reported a higher prevalence of sleep aid use among those with sleep disorders [1]. The correlation between insomnia and sleep aid use highlights the importance of addressing underlying sleep disorders in EM physicians, as these conditions may exacerbate the negative impacts of shift work on sleep quality. Our results also support the idea that shift work, particularly rotating and night shifts, contributes to the development of insomnia and other sleep disturbances.

Our study found that participants who perceived shift work as negatively impacting their sleep were more likely to use sleep aids, with 61.6% of those in this group reporting pharmacological sleep aid use ($P \leq 0.0001$). This finding aligns with the established literature on the impact of shift work on sleep quality, which has consistently shown that the disruption of the circadian rhythm due to rotating or night shifts leads to sleep disturbances among healthcare workers [6]. Shift work is known to lead to circadian misalignment, which can cause difficulty falling asleep, poor sleep quality, and excessive daytime sleepiness. In line with previous studies, our results suggest that the use of sleep aids among EM physicians may be a coping mechanism to mitigate these disruptions and maintain wakefulness during shifts.

Interestingly, family commitments and personal stressors were also identified as factors contributing to sleep difficulties in our study, with 37.4% and 34.8% of participants, respectively, citing these as reasons for difficulty initiating or maintaining sleep. This finding is consistent with research that has identified emotional stress and family-related issues as independent predictors of sleep aid use [4]. Stress, both work-related and personal, can exacerbate sleep disturbances and contribute to a cycle of sleep deprivation that affects performance, health, and well-being. This highlights the multifactorial nature of sleep disturbances among EM physicians, with both occupational and personal factors playing a significant role.

The most common reason for taking sleep aids in our study was to reset circadian rhythms or restore a natural sleep cycle, with 50% of participants reporting this as their primary motivation. This suggests that, in addition to facilitating sleep after night shifts, EM physicians may use sleep aids to combat the long-term effects of circadian misalignment caused by rotating shifts. Restoring a natural sleep cycle may be essential for maintaining overall health and cognitive performance in a profession where sleep deprivation is commonplace. This finding diverges from international studies, which often cite the need for sleep after night shifts as the primary reason for using sleep aids [1]. It is possible that the cumulative sleep debt induced by rotating shifts leads to a stronger need to realign circadian rhythms in our cohort of physicians.

Our study also explored the use of non-pharmacological sleep aids, which were reported by 77.8% of participants. Watching television and reading were the most common methods, with 56.5% of participants using these activities to relax before sleep. These findings align with previous research, which found reading to be the most popular non-pharmacological method for improving sleep quality among EM physicians [4]. Other non-pharmacological methods included sexual activity (46.1%), exercise (32.5%), meditation (17.5%), and yoga (5.2%). These methods are consistent with the broader literature on sleep hygiene, which suggests that relaxation techniques, physical activity, and mental health practices can improve sleep quality and mitigate the effects of stress.

The use of stimulants, particularly caffeine, was widespread among EM physicians in our study, with 86.4% reporting stimulant use to maintain wakefulness during shifts. This high percentage aligns with other studies, where 83% of EM residents reported stimulant use [4]. Caffeine was the most commonly used stimulant, with 97% of participants consuming it, which is consistent with global trends where caffeine is the most commonly used stimulant among healthcare professionals [1]. In our study, nicotine (25.1%) and energy drinks (21.1%) were also commonly used. While nicotine use was relatively low compared to caffeine, it remains a notable factor in the stimulant use profile of Saudi EM physicians. The high consumption of energy drinks, however, contrasts with the findings of Francis *et al.* [1], where energy drinks were the second most commonly used stimulant.

Interestingly, our study found that factors significantly correlated with the use of sleep aids—such as insomnia and shift work—were also significantly correlated with stimulant use. This suggests that sleep disturbances, along with the demands of shift work, are major drivers of stimulant use among EM physicians. Stimulants help mitigate the effects of sleep deprivation and circadian misalignment, but their use can further disrupt sleep patterns, creating a vicious cycle of sleep deprivation and stimulant dependence.

The cycle may begin with stimulant use to combat fatigue, which then disrupts sleep architecture—particularly by reducing slow-wave sleep and REM sleep—leading to further insomnia. As a result, physicians may increase their reliance on sleep aids to induce sleep, perpetuating dependence on both stimulants and sedatives. The literature suggests that stimulant-induced changes in sleep physiology impair restorative sleep, thus fueling ongoing stimulant use to maintain daytime functioning [7].

Poor sleep quality and excessive daytime sleepiness are well-documented factors that can negatively affect healthcare workers' performance and increase the likelihood of medical errors [1] [6] [7]. In our study, 9.5% of participants felt that sleep aid use adversely affected their ability to provide quality patient care, and 5.5% believed that stimulant use had a similar negative impact. These results are consistent with research showing that sleep deprivation and circadian misalignment can impair clinical judgment, decision-making, and physical performance during shifts [8] [9]. Additionally, performance in tasks such as intubation and triage may be particularly affected during night shifts, as insufficient sleep and circadian misalignment impair cognitive and physical abilities [10].

This discrepancy between subjective perceptions and objective data is notable. While only a small proportion of participants reported perceived impairment, studies using cognitive testing and clinical simulation have consistently shown performance degradation under conditions of sleep deprivation. Tasks such as diagnostic reasoning, response time, and procedural accuracy show measurable declines even with moderate sleep loss [10]. This suggests that EM physicians may underestimate the functional consequences of their sleep deprivation.

Finally, part of our study was to explore potential solutions for mitigating the use of sleep aids and stimulants while improving sleep quality and maintaining high-quality patient care. Taking regular vacations was the most commonly endorsed strategy for improving sleep quality and mitigating the effects of shift work, with 57.6% of participants supporting this approach. Increasing the number of emergency department physicians was the second most favoured solution (19.7%), which suggests that reducing the burden on individual physicians through staffing improvements could help alleviate sleep-related issues. Other strategies, such as rotating shifts or taking breaks in different specialties, were also considered but had lower support (14.1% and 8.6%, respectively). These results highlight the need for systemic changes in the workplace to address the sleep challenges faced by EM physicians and to promote long-term health and performance.

Future interventions should prioritize specific strategies such as forward-rotating shift schedules—which align more naturally with circadian rhythms—and timed exposure to bright light to support circadian realignment. Cognitive behavioral therapy for insomnia (CBT-I) and institution-wide sleep hygiene education programs may also offer sustainable benefits. Implementing quiet rooms and protected nap times during long shifts could further reduce fatigue and improve alertness.

5. Conclusion

In conclusion, the use of sleeping aids and stimulants among emergency medicine physicians is prevalent, mirroring findings in international literature, and poses potential risks to both the health of the physicians and the quality of patient care. Our study found no significant correlation between the use of these substances and factors such as physician age, gender, living situation, or years of experience in emergency medicine. However, insomnia and perceptions that shift work negatively impacts sleep were significantly associated with the use of sleeping aids and stimulants. Several potential solutions to mitigate these issues were discussed in our study, including structural changes in work schedules and improved sleep hygiene. Despite these findings, the long-term effects of shift work and the use of sleep aids and stimulants on physicians' health remain largely unknown, warranting further investigation to ensure the well-being of healthcare professionals and the quality of care they provide.

6. Study Limitations

Despite the robust response rate, several limitations should be acknowledged. First, the study relied on self-reported data, which may be subject to recall or social desirability bias, as participants may underreport or overreport their use of sleeping aids and stimulants. Additionally, while the sample size of 198 emergency medicine physicians was substantial, it fell short of the calculated target of 375 respondents, based on a 95% confidence level and a 4% margin of error. This means the target sample size was not fully reached, which may affect the precision of some estimates and limit the generalizability of the findings. The expected non-response rate of 20% further compounds this limitation. Moreover, the study was conducted within a single country (Saudi Arabia), and the results may not be applicable to other regions with different healthcare systems, city environments, or cultural contexts. Factors such as the size of the city, hospital resources, or physician workload in urban versus rural settings could influence physicians' sleep habits and their reliance on sleep aids and stimulants. Another limitation is the cross-sectional design, which does not allow for conclusions about causality among shift work, sleep aid usage, and health outcomes. Finally, while the survey gathered important demographic data, other potential influencing factors, such as workload intensity and personal health conditions, were not thoroughly explored. Future research should aim to address these gaps, using longitudinal designs and

larger, more diverse samples, and examining the role of hospital and city environments in shaping sleep patterns and medication use among physicians.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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