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Evaluating sleep quality of medical staffs in hospitals in Vietnam

Nguyen Minh Trang[1] | Nguyen Dinh Minh Anh[2] | Nguyen Phuong Lan[3]

[1]Diplomatic Academy of Vietnam
[2]MacDuffie School
[3]High School for The Gifted

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Abstract:

Sleep plays a crucial role in maintaining overall well-being. It bolsters memory consolidation, problem-solving, creativity, and emotional regulation by enhancing the brain's ability to integrate, reinforce, and retrieve information. Therefore, 7-8 hours of sleep, depending on age, is vital for optimal health, while sleep deprivation significantly raises the risk of mortality. Chronic lack of sleep and poor sleep quality are linked to a range of mental and physical disorders, including high blood pressure, cardiovascular disease, diabetes, depression, and obesity. However, in the medical field, sleep deprivation is often seen as the norm. The idea that health professionals, such as doctors and nurses, achieve sufficient sleep is almost bizarre. This article will examine the quality of sleep among health professionals using the 'Pittsburgh Sleep Quality Index' to assess how sleep impacts their routine, lifestyle, and overall well-being, both mentally and physically.

Keywords: Sleep quality, medical staffs, hospitals, Vietnam

1. Introduction:

Sleep is a state controlled by the body's natural rhythm, where there is partial or complete loss of consciousness, muscle relaxation, and reduced sensitivity to outside stimuli. Other features include special brain patterns seen in brain scans and EEGs during sleep. There are four stages of sleep, which include NREM sleep, and they are mixed with periods of REM sleep when most dreams happen. After deep sleep, a person may go back to light sleep or REM sleep, and this cycle can repeat several times during a normal night. These characteristics help tell the difference between normal sleep and loss of consciousness caused by brain injury, illness, or drugs (APA, 2018). Sleep plays a crucial role in maintaining overall well-being. It bolsters memory consolidation, problem-solving, creativity, and emotional regulation by enhancing the brain's ability to integrate, reinforce, and retrieve information (Basics, 2006).

Particularly, sleep is also critical to health caregivers, who often face stressful working shifts and ponderous responsibilities. That is, quality sleep plays an irreplaceable role in protecting the physical and mental state for health workers. They are demanded to work longer, and thus they might feel the physical strain or exposure to illness. Quality sleep thus helps them restore energy, supports immune function, and reduces the risk of burnout and illness, thereby ensuring that health caregivers are physically prepared for demanding shifts. Additionally, the quality of sleep health care

staff get also extends to their cognitive functioning and decision-making capability. Poor sleep would lead to poor memory, concentration, and problem-solving ability (Tarhan, Aydin, Ersoy, & Dalar, 2018). However, health workers need to make decisions fast and correctly, particularly in emergency situations. Therefore, sleeping helps them have a fresh mind and work with minimal errors for the benefit of the patient. Good quality sleep is good for their well-being and working performance.

In recent years, compared to the past, there has been a significant improvement in the healthcare system in Vietnam, focusing on the expansion of access to medical services and enhancement of the quality of care. There are clearly public hospitals, private hospitals, and international healthcare facilities to meet the diverse healthcare needs of its population. Public hospitals have been the main avenues where the majority of the population has accessed medical treatment at affordable costs, while private and international hospitals provide high-quality, advanced care, usually to higher-income groups and foreign residents. Besides, a vast network of private clinics and healthcare services meets the demands of people with different economic levels by meeting the demand for prompt and flexible care. Undeniably, this development is essential for the citizens. However, this leads to a heavy workload for staff in Vietnam. Besides office hours, they are required to work overtime, night shifts, rotating shifts, and on-call shifts…depending on their positions.

According to some research, many health professionals are suffering from "shift work disorder", which causes sleep disorders (Nena et al., 2018). The psychological aspect is affected due to this problem since continuous disturbance of sleep can alter the hormones responsible for maintaining mood, thus making an individual less capable of withstanding stress and giving rise to emotional instability. Long-term sleep deprivation affects cognitive functions, memory, and decision-making, which are important in high-stakes environments such as hospitals. The shift work disorder can also destroy their biological health. Irregular shift work and working against the body's natural biological clock may cause problems with the circadian rhythm. Disturbances in the rhythm lead to chronic stress, increased blood pressure, and other factors that contribute to heart diseases. Health workers, mainly those working at night, often do not have any time to eat at specified hours or to select the right foods. Poor diet, combined with a lack of time for physical activities, contributes to reduced well-being. These problems lead to troubled sleep and include falling deep into sleep and not having enough sleep.

2. Methodology:

a. Materials:

The Pittsburgh Sleep Quality Index (PSQI) material was used in this survey in order to measure the participants' sleep quality. This is a self-report questionnaire that assesses sleep quality and disturbances over a one-month period. The PSQI consists of 19 questions that are grouped into seven components:

- Subjective Sleep Quality
- Sleep Latency
- Sleep Duration
- Habitual Sleep Efficiency
- Sleep Disturbances
- Use of Sleep Medications
- Daytime Dysfunction

Each of the seven components is scored from 0 to 3. The higher scores indicate a worsened sleep quality. These component scores are then summed to produce a global sleep quality score. The global score ranges from 0 to 21, with higher scores reflecting poorer sleep quality. This is the interpretation criteria for the PSQI scores:

- 0-5 points: Good sleep quality, no major sleep issues.
- 6-10 points: Fair sleep quality, with some issues that may need improvement.
- 11-15 points: Poor sleep quality, with significant problems that may require intervention.

- 16-21 points: Very poor sleep quality, indicating severe sleep disturbances that likely need professional help.

b. Method:

This was a cross-sectional survey to examine the relationship between participants' sleep quality and other related factors. Data were collected using an online survey created with Google Forms. The survey was structured into several sections such as Demographic Information; Sleep Quality Test and Related Factors. The survey was open from July to August 2024. However, due to an oversight in the PSQI test, 2 questions were missing. As a result, the score for the ratio of total sleep time to time in bed was calculated by taking the average of the scores from the other sections of the test.

c. Participants:

The sampling method was using an online form through a questionnaire in Google Form. Participants who participated in this survey were healthcare professionals working in public hospitals, private hospitals, and clinics. They are also aged between 18 and 60 years or older and willing to participate in the study and provide personal information for research purposes. After collecting all the samples, we removed participants who did not agree to provide personal information for the research and failed to answer all survey questions completely. Initially, a total of 252 samples were collected. After applying the exclusion criteria and removing incomplete or non-compliant responses, the final sample consisted of 247 participants.

Age: The study surveyed 247 healthcare professionals from departments, including the functional department, the Critical care unit (ICU, CCU, CICU, intensive recovery, anesthesia, operating room...), emerg ency department, and others. Participants range from 18 to 25 year olds to over 60 years old, the average age of the participants is approximately 41 years old.

Gender, Marital status and Children: Among 95 men and 152 women surveyed, 65 of the workers have reported their marital status as single, 177 are married and 5 people are divorced. Meanwhile, 78 people reported having no biological children, 151 had 1 or 2 children, and 18 people had 3 or more children.

Work Experience: The distribution of seniority among participants shows that the majority have significant experience in their fields. Specifically, 36 participants have 1 to 5 years of experience, 49 participants have 5 to 10 years, 39 participants have 10 to 15 years, 43 participants have 15 to 20 years, and a substantial 80 participants have more than 20 years of experience.

Working Shifts: Among all of them, 187 people worked on office hours while the other 60 had rotating shifts. Regarding night shifts, 81 participants did not work night shifts, 83 worked night shifts once a week, and another 83 worked night shifts more than once a week. The majority of the participants were from public hospitals (221), while 19 were from private hospitals, and 7 worked in clinics.

Educational Level: The majority of the respondents, 90, are nurses, which reflects the vital and pervasive role that nursing plays in healthcare settings. This is followed by large numbers of Specialist Doctors Level II (48) and Master's degree holders (40), indicating a highly educated and specialized workforce. Specialist Doctor/Nurse Level I (28) and Doctor (20) categories also make up a considerable portion of the sample, showcasing a range of expertise within the healthcare teams. The presence of participants with Ph.D. degrees (11) highlights the integration of advanced research and clinical practice. The "Other" category (10) includes healthcare workers with various other educational backgrounds, contributing to the diversity of the sample.

Medical Department: Among 247 participants, there were workers from various departments. These departments included Functional (18 participants), Intensive Care Units (15), Emergency (2), Outpatient (29), Internal Medicine (103), Surgery (16), Obstetrics (11), Pediatrics (7), Specialized (10), Paraclinical (14), and Others (14).

3. Results:

3.1. PSQI score of participants from different job positions:

The results of this study indicate that job position within the healthcare sector plays a crucial role in determining sleep quality. Nurses, with PSQI mean scores of 7.85, face the most significant challenges regarding sleep disruption due to irregular work hours, night shift and rotating shifts, high stress levels, and high patient care demands. Doctors, though they still encounter significant challenges due to the demanding nature of their profession, their PSQI mean score is slightly lower than nurses, accounting for 6.8. In a survey of 96 nurses, the majority, 53.13% (51 nurses) reported that the pressure of work definitely affects their sleep quality, highlighting the significant impact of the demanding nature of healthcare jobs, such as long shifts and emotional stress. Meanwhile, just 14.58% (14 nurses) indicated that their work does not affect their sleep. In a survey of 140 doctors, the majority of them - 57.14% (80 doctors) - reported that their work definitely affects the quality of their sleep, underlining the significant impact of workload and stress associated with medical practice. Meanwhile, just 15% (21 doctors) indicated that their work does not affect their sleep, which could reflect better-coping mechanisms or less stressful job conditions.

Moreover, employees' unsatisfactory feelings about the work environment significantly affect their sleep quality. This is because these unsatisfactory feelings can cause anxiety and other mental disorders which lead to hardly falling asleep. According to the survey, all the satisfactory feelings of nurses about work environment, income, and colleagues are under average, which is below 3/5. This indicates that poor working conditions, low pay, and problem relationships with colleagues are causing dissatisfaction in general. Factors that affect not only themselves but also their performance at work. It also means that doctors are averagely satisfied with their work environments, income, and colleagues with a rating of about 3/5 of the total marks.Whereas the mean satisfaction with colleagues, patients, and families is just about 2/5. The implication of this is that workload, poor working conditions, and poor remuneration are not likely to be as great a cause of dissatisfaction and disruption to sleep than problems from colleagues, patients, and relatives. This again evidences that work environment and the stressors related to it impact a lot on the well-being and performance of the health professionals at medical positions.

Overall, despite having different mean scores, both job positions share similar characteristics. The majority of them agree that work pressure significantly impacts their sleep quality. Additionally, their satisfaction with work environments, income, and relationships with colleagues is generally below or around average. These factors can negatively affect their well-being, particularly their mental health, by contributing to stress and pressure at work. As a result, their sleep quality is likely to be compromised.

Table 1. Average sleep quality of individual from different job positions

Nurse, Midwife, Nursing Assistant	***7.85***	Average Sleep Quality
Administrative Officer	***7.57***	Average Sleep Quality
Doctor	***6.8***	Average Sleep Quality
Technician	***5.5***	Average Sleep Quality

Source: Authors' self-complied

This study reported differences in the sleep quality among responders from different departments; the Board of Directors represented the poorest quality, while Pediatrics had the best quality. The result has pointed out that there was variation regarding sleep quality across the departmental healthcare workers and direct relation with their working pressures. For example, the Board of Directors, with a PSQI

mean score of 14, had very poor sleep quality. This could be explained by the high level of responsibility and decisions that fall under their job description. The burden of managing whole healthcare facilities and making life-and-death decisions must weigh heavily on them and affect their sleep. Similarly, surgeons, with a PSQI mean score of 8, have moderate sleep disturbances. The physical and mental demands of performing surgeries, often under time constraints and high pressure, contribute to their compromised sleep quality. The need for precision and the potential consequences of any error add an additional layer of stress, further exacerbating sleep issues.

Variations Across Departments:

Different levels of sleep quality are observed in different departments of health facilities due to the unique challenges faced by each department. The Pediatric Department and the Intensive Care Unit have a mean PSQI score of 7.52. In pediatrics, emotional stress brought about by caring for children, along with irregular working hours, disrupts their sleep. Personnel in the ICU also have to be very observant and make life-and-death decisions continuously, which is very stressful and thus disrupts their sleep.

Administrative staff, with a PSQI mean score of 6.89, face average sleep quality. Although they may not deal directly with patient care, the responsibilities of managing operations, staff, and resources can be overwhelming. The need to ensure the smooth functioning of the healthcare facility adds to their stress levels, impacting their sleep. Departments such as Obstetrics, ENT – Eye – Odontology, and Outpatient Services, by PSQI mean score ranging from 6.7 to 6.82, face similar sleeping problems. The on-call nature of obstetrics, the specialized demands of ENT and Eye care, and the steady patient flow in outpatient services contribute to moderate sleep disturbances.

Insights and Implications:

The study gives a hint into the grave relevance of the issue as to how to improve the sleep quality among health workers. Poor sleeping has not only personal health but also professional outcomes, where poor patient care and safety may happen. Therefore, health facilities need to create strategies toward improving work pressures through provisions of mental health support and promotions of good work-life balances, facilitating policies and regulations that enhance rest and recuperation periods. Improvement in the quality of sleep is possible with investment in enhancing measures, leading to a healthier and more resilient workforce that will improve the quality of care for the patients. Recognizing unique challenges at different departments and targeting interventions accordingly can make much of a difference in the general well-being of healthcare professionals. Overall, the findings indicate that work pressure is related to the quality of sleep among health professionals. Each department has its unique stressors, which contribute to differing levels of sleep disturbance. Such challenges should be supported through policies and practices that ensure the health and effectiveness of healthcare professionals. By caring for those who care for others, health care institutions can work toward a more sustainable and compassionate environment for providers and patients alike.

Table 2. Sleep quality of participants from different departments

Board of Directors	***14***	Poor Sleep Quality
Surgery	***8***	Average Sleep Quality
Pediatric Department	***7.52***	Average Sleep Quality
Intensive Care Unit	***7.52***	Average Sleep Quality
Adminstrative Department	***6.89***	Average Sleep Quality
Obstetrics	***6.82***	Average Sleep Quality
Ent – Eye – Odontology Department	***6.7***	Average Sleep Quality
Outpatient Department	***6.61***	Average Sleep Quality
Paraclinical Department	***6.5***	Average Sleep Quality
Emergency	***6.33***	Average Sleep Quality
Pediatrics	***5.71***	Good Sleep Quality

Source: Authors' self-complied

Nap Duration and Frequency: There are people who do not take small naps during the day (87), while the majority take 15-30 minute naps throughout the day (124) or more than 30 minutes (36). Short naps (15-30 minutes) are common and generally beneficial, but longer naps can disrupt nighttime sleep.

Work-related stress: Out of 247 health workers, 136 reported work-related stress, 36 did not, and 75 were undecided. From which we observe that the larger share of our respondents, 55% do experience stress associated with the work environment and are likely to affect their sleep quality negatively. We go ahead to contrast the PSQI score of such groups to compare how these levels of stress would relate to subjective quality of sleep. This may indicate that persons who have job-related stress are expected to have higher PSQI scores, which means poor sleep quality, and persons not experiencing the state of stress may show quite good sleep quality. Patients who cannot specify whether they have job-related stress will be all over the lot and dependent on many variables.

3.2. Overall PSQI scores:

- **Subjective sleep quality**

Sleep medication: Most of the respondents reported not taking sleep medication at all, at 87.5%, followed by a small portion taking it once per week (6.1%), 1-2 times per week (5.1%), or even more than twice a week (1.1%). While sleep medications may be of help in falling asleep, they do not always help improve the quality of sleep. Users might still experience fragmented sleep and not get to that deep, restorative sleep necessary for overall well-being (Min et al., 2016).

Sleep Quality: Most participants rate their overall sleep quality as good (69.2%), though 23.9% report bad sleep quality, highlighting the need for interventions to improve sleep among a significant minority. Only a small percentage report having experienced very good sleep in the last month (6,1%) while a few people report very bad sleep (0,8%). Such influences include a variety of aspects, like work-related stress, the use of electronic devices, environmental conditions, and health status. Identifying these will provide the necessary clue to implementing focused measures in improving sleep quality.

In our distribution case, the subjective sleep quality can be calculated to a mean score of 1,2. That is, many subjects reported good quality and thus responded 1, while another fair proportion reported bad quality and had answered 2. The score of 1.2 falls between 1 (Fairly good) and 2 (Fairly bad), indicating the overall rating of sleep quality tends to be generally good to averagely poor. That thus indicates that though participants would report fairly good sleep, a fair proportion of poor quality of sleep tips the balance to being fairly bad on average.

- **Sleep Latency:**

Time to fall asleep: The analysis of sleep latency among the respondents of health professionals shows that a huge portion of the participants face problems in falling asleep within a decent time. This is because 32.8% of the participants fall asleep in less than 15 minutes, 38.3% take 16-30 minutes, 22.3% take 31-60 minutes, and 6.1% take more than 60 minutes to fall asleep. The participants in this study take an average of 26 minutes to fall asleep, which is slightly longer than the general average time of 15-20 minutes. This indicates that the healthcare professionals in your sample may experience mild to moderate difficulties with sleep onset compared to the general population. This longer sleep latency may be due to work-related stress, irregular working hours, or environmental conditions (Goldberg, Thomas, & Lipinska, 2020). Interventions required for these factors, such as stress management programs and the education of sleep hygiene, would reduce the time taken by participants to fall asleep.

Difficulty falling asleep throughout the week: Additionally, nearly half of the participants (46.2%) never experience difficulty falling asleep within 30 minutes, while the rest encounter this issue with varying frequency: 19.8% once a week, 20.2% one to two times a week, and 13.1% more than twice a week. The average PSQI score for these segments is approximately 2.07, indicating

moderate difficulties in sleep latency. These findings suggest that while many healthcare professionals manage to fall asleep relatively quickly, a significant portion face persistent challenges that could impact their overall sleep quality. Addressing factors such as work-related stress, environmental conditions, and sleep hygiene practices could help mitigate these issues and improve sleep onset for healthcare workers.

- **Sleep Duration:**

Sleep duration among the surveyed healthcare professionals shows that only 7.3% of the participants obtain more than 7 hours of sleep per night, which is the recommended amount for optimal health. The greatest percentage, 38.3%, sleeps for 6-7 hours, which is a little below the ideal but still relatively adequate. However, 44.5% of respondents sleep only for 5-6 hours and 9.9% sleep for less than 5 hours, which is inadequate for the development of chronic sleep debt and is associated with a host of health problems. Short sleep duration is considered to be associated with the increased risks of chronic diseases, mental health problems, and impaired cognitive function also. The mean PSQI score for the sleep duration component among the health professionals surveyed is 1.5. This represents a length of time between 5–6 to 6-7 hours every night. Although this time length is considered marginally better than extreme sleep deprivation, it is less than the seven to nine hours recommended for good health. They are thus likely to be experiencing some mild sleep deprivation, which has been linked with a host of health-related problems, including increased levels of stress, chronic illness, and degraded cognitive performance (Banks & Dinges, 2007).

- **Sleep Efficiency:**

Sleep Duration: Data presented show that about 83.4% of 247 participants are sleeping less than 7 hours, comprising 9.3% sleeping less than 5 hours, 44.5% sleeping between 5-6 hours, and 38.9% sleeping from 6-7 hours. This is quite low given the recommended hours for a full-grown person-7-9 hours of sleep. Lack of sleep may cause several health problems: cognitive malfunction, deteriorated physical health, and emotional distress. In a health professional, it will further lead to inappropriate delivery of services, no alertness, and serious decision-making.

The actual amount of time spent sleeping: To effectively address this component, we need statistics related to the ratio of time spent asleep to the time spent in bed with following score: Score 0: Sleep efficiency > 85%; Score 1: Sleep efficiency 75-84%; Score 2: Sleep efficiency 65-74%; Score 3: Sleep efficiency < 65%

Despite the challenges with sleep duration, sleep quality statistics show that the majority of the respondents, 69.2%, consider their sleep to be good, while 6.1% rate it as very good. Almost a quarter, 23.9%, described their sleep quality as bad, and a small percentage, 0.8%, described it as very bad. This distribution shows that the mean of poor sleep quality indicates moderate to good sleep quality among health professionals. However, such a remarkable percentage of poor sleepers does exist, which indicates that improvement in working stress, environmental factors, and health factor conditions must be considered. Thus, health organizations may identify actions to promote the general health and sleep quality of working individuals.

Health care workers usually have poor sleep efficiency because of demanding work schedules, stress, and environmental factors. A study by Surani et al. (2015) (Surani et al., 2015) indicated that health professionals commonly have sleep disturbances, with a high percentage reporting low sleep efficiency. The study identified low quality and efficiency of sleep among health workers, with potential consequences for high levels of stress, cognitive impairment, and a predisposition to chronic diseases. Interventions for sleep hygiene and stress management are recommended so that sleep efficiency and overall well-being can be optimized among health workers. The mean score of almost 1.56 suggests that most of the subjects experience moderate difficulties in terms of receiving the recommended 7-9 hours of sleep every night. It can lead to a worsening of their

emotional, physical, and cognitive well-being, which may further negatively affect their professional performance and the standard of care provided. This sleep duration dilemma has to be solved for improving the overall health and effectiveness of these professionals so that they may affect their patients appropriately.

- **Sleep Disturbance:**

Frequency of Getting Up to Go to the Bathroom: The data indicates that the majority of health professionals, 93.5%, do not wake up to go to the bathroom at night. However, a small percentage of the population does experience this disturbance: 2.8% get up once a week, 1.2% get up once or twice a week, and 2.4% get up more than twice a week.

Shortness of Breath: A large majority of health professionals (94.3%) do not experience shortness of breath during the night. A smaller percentage experiences this disturbance occasionally, with 3.6% reporting it once a week, 1.6% once or twice a week, and 0.4% more than twice a week. While shortness of breath is not a common issue for most participants, those who do experience it may find it significantly affects their sleep quality.

Coughing or Loud Snoring: Survey data reveals that a significant majority of health professionals (73.7%) do not experience coughing or loud snoring during the night. However, a notable percentage does experience these disturbances, with 10.1% reporting it once a week, 8.5% once or twice a week, and 7.7% more than twice a week.

Feeling Too Cold: Most health professionals (74.9%) do not feel too cold during the night. However, a significant portion does experience this disturbance, with 13.4% feeling too cold once a week, 9.3% once or twice a week, and 2.4% more than twice a week.

Feeling Too Hot: The data indicates that 83.4% of the health professionals do not feel too hot at night. Yet a fair percentage, though smaller, do experience this problem: 9.3% once a week, 5.3% once or twice a week, and 2.0% more than twice a week.

Bad Dreams and Nightmares: The data shows that a majority of health professionals (74.9%) do not experience bad dreams or nightmares. However, a significant portion does encounter this disturbance, with 19.0% experiencing bad dreams or nightmares once a week, 3.6% once or twice a week, and 2.4% more than twice a week.

Feeling Hurt and Pain: The data indicates that the majority of health professionals (82.6%) do not experience pain or discomfort during the night. However, a notable portion does face this issue, with 7.7% experiencing pain once a week, 6.5% once or twice a week, and 3.2% more than twice a week.

Other Reasons for Sleep Disturbances: Finally, the vast majority of health professionals (89.9%) do not experience other unspecified reasons for sleep disturbances. However, a small portion does face such issues, with 7.7% experiencing them once a week, 1.6% once or twice a week, and 1.2% more than twice a week.

Waking up at the middle of the night or too early: The detailed analysis of the pattern of waking up in the middle of the night or early among the surveyed healthcare professionals shows that only 31.6% of the participants never wake up during sleep, meaning that sleep is regular and continuous. Another 21.5% reported waking up once a week, while 28.7% wake up 1-2 times a week, and 18.2% wake up more than twice a week. This means that 68.4% of participants reported sleep fragmentation at least once a week, which really could have an important influence on sleep efficiency and general quality of sleep. Frequent awakenings disrupt the sleep cycle, leading to insufficient deep and REM sleep, which are crucial for restorative sleep. Such sleep fragmentation may lead to increased health risks due to higher levels of stress, impaired cognitive function, and predisposition to chronic conditions. Further, the disruptions in sleep can result in excessive daytime sleepiness and reduced alertness, which is of great concern to healthcare professionals (Stepanski, 2002). To be more specific, some of these are the following interventions: stress management techniques, sleep-conducive environment, and

clinical evaluation for possible sleep disorder diagnosis.

Different types of sleep disturbances, according to the data of the survey, have been disturbing health professionals. Though quite a few of them may not experience these issues like waking up in the middle of the night, coughing or loud snoring, being too hot or too cold, and having bad dreams were relatively common among a quite notable portion of participants. The average score of 3.32 for Component 5 (Sleep Disturbances) indicates that, on average, the health professionals surveyed experience sleep disturbances relatively frequently. In practical terms, this means that these sleep disturbances are significantly impacting the overall sleep quality and potentially the well-being of the health professionals.

- **Sleep Medications:**

The results of Component 6 of the PSQI sleep questions indicate that over the last month, the majority of respondents (217 of 247) did not use sleep medications, thus indicating a relatively low reliance on pharmaceutical sleep aids within this population. A smaller proportion reported the use of sleep medications: once a week, 15 used, once or twice a week used by 10, and more than twice a week used by only 5. This data indicates that though sleep medication usage is there, it is not widespread, and that a great majority prefer to handle their sleep without pharmaceutical help. Infrequent medication for sleep may reflect either a preference for non-pharmacological interventions or general contentment with their sleep quality in most participants. This may suggest that the monitoring of sleep hygiene and the search for alternative sleep strategies should be given particular emphasis when the use of medication is more frequent. Overall, these numbers point to a need for further research into the underlying reasons for the choice of sleep aids and the efficacy of non-pharmacological sleep interventions in this group.

According to a study published in the Journal of Functional Ventilation and Pulmonology, sleep disorders such as insomnia, sleep deprivation, and obstructive sleep apnea (OSA) are prevalent in Vietnam. The study highlights that many Vietnamese individuals report feeling like they are not getting enough sleep, and these sleep issues often go underdiagnosed and untreated (Duong-Quy, 2021). The mean for Component 6 is about 0.20, indicating very low frequency for sleep medication use across the population in this sample. Given that fully 217 out of 247 of the participants are not using medications for sleep at all, it therefore follows that only a small segment of the sample uses this particular class of pharmaceuticals for sleeping purposes. This low average and small number of users indicate that most respondents do not have sleep managed by medication, possibly due to good sleep hygiene practices or satisfactory quality of sleep. On the other hand, 30 users of sleep medications may benefit from targeted interventions addressing specific sleep challenges. Healthcare providers might consider the investigation of non-pharmacological approaches and educational programs to enhance better sleep habits among those taking sleep aids.

- **Daytime Dysfunctions:**

Difficulty Staying Awake: We asked participants whether they had encountered difficulty staying awake while doing daily activities like driving, eating meals or engaging in social activities. The data collected for Component 7 of the PSQI survey among 247 participants reveals the following: 160 participants reported no trouble staying awake in the past month; 59 participants experienced trouble staying awake once a week; 13 participants experienced trouble staying awake once or twice a week; 15 participants experienced trouble staying awake more than twice a week. This data indicates that approximately 35% of the participants experienced some level of daytime dysfunction due to sleep issues. The majority of participants (65%) did not report any trouble staying awake, suggesting better sleep quality and daytime alertness.

Daytime dysfunction can significantly impact daily activities, including work performance, social interactions, and overall quality of life. According

to a study published in the Nature and Science of Sleep, there is a strong association between poor sleep quality and daytime dysfunction, particularly in older adults. The study found that individuals with poor sleep quality were more likely to experience difficulties in staying awake and maintaining enthusiasm for daily tasks (Lin et al., 2022). Another study published in Frontiers in Public Health explored the relationship between sleep quality and daytime dysfunction among college students during the COVID-19 pandemic. The findings revealed that poor sleep quality was associated with higher levels of daytime dysfunction, including trouble staying awake and reduced enthusiasm for activities (Ji et al., 2023).

Loss of Interest or Motivation for Work: In the case of loss of interest or motivation to work among 247 participants, the data showed that 68 had no loss of interest or motivation, while 179 reported a loss of motivation ranging from once a week to more than twice a week. This high proportion, about 72%, means that the majority of participants experience difficulties in maintaining enthusiasm for work, probably because of poor sleep quality. The consequences from impaired performance in individuals and further damage to mental health or general well-being are large-scale. According to the studies by Lin et al. (2022) and Ji et al. (2023), poorer sleep quality promotes greater daytime dysfunction; hence, there is an even greater call for holistic interventions. Improvement in sleep hygiene, mitigation of stress, and maintenance of a proper work-life balance will help decrease these problems and better one's personal and professional life. With an overall score of 377, it shows from the data that the majority of respondents have problems keeping awake and showing enthusiasm. Indeed, as many as 160 respondents did not have any problem keeping awake, whereas 87 respondents showed problems that ranged from occasionally to very frequently. In a similar vein, 68 did not experience any loss of motivation, but an overwhelming number of 179 faced it once a week or more. The average score for Component 7 is about 1.53, reflecting a moderate degree of daytime dysfunction among the participants, suggesting that on average, participants have some trouble staying awake or loss of interest/motivation for work.

4. Conclusion:

The average score, at about 11.38, would indicate a very high level of sleep disturbance in this group. With the threshold above 5, this score shows that most of the participants have serious problems with sleep. The breakdown of components does indeed have a number of areas of concern: Component 5, sleep disturbances, had the highest average of 3.32, while Component 6, use of sleep medications, had the lowest average of 0.20. Such findings again support the need for a comprehensive approach in improving sleep quality, given that impaired sleep may affect daily functioning and mental health, as well as overall wellbeing. The high global PSQI score among health workers and professionals in the hospital indicates that they may be suffering from severe sleep disturbances. This could be due to high stress and demanding workloads, common in healthcare settings. Sleep disturbances and daytime dysfunction, with a mean score of 1.53, may reduce their alertness and efficiency, which may impact patient care. The high overall PSQI score denotes poor sleep quality, which is strongly associated with the risk of mental health problems such as anxiety, depression, and burnout. Many health workers, based on the data, could be at risk of these conditions impinging on their well-being and job performance. Burnout has been documented among healthcare professionals as a common hazard, and this may be precluded by paying attention to sleep quality. Daytime dysfunction and decreased motivation, as in Component 7, may lead to lower productivity and performance. In the case of health workers, this might mean an increased likelihood of mistakes, less empathy, and a generally lower quality of care given to patients (Stepanski, 2002). It is important that healthcare professionals get enough sleep to maintain the highest standards of patient care.

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