Health and lifestyle analysis of working adults based on their sleep habits

Table of Contents

List of Figures

1 Introduction

1.1   Background of the study

The modern workforce is more frequently subjected to intense demands and extended working hours due to the uncontrollably rapid advancement of technology and paradigm shifts (Rosa et al., 2018). This frequently results in inadequate sleep and health difficulties with lifestyle choices. In recent years, there has been a growing awareness of the significance of sleep for preserving general health, wellbeing, and productivity at work. According to (Swanson et al., 2011) a person's physical, mental, and professional health, as well as their ability to function in their professional lives, can all be significantly impacted by sleep disorders, which are basic to human existence.

Since they juggle so many duties, working individuals are especially vulnerable to sleep-related problems. The demands of a job coupled with personal and family obligations might result in irregular sleep patterns, short sleep durations, and an increased risk of sleep disorders.

The purpose of this study is to investigate the complex relationships that working individuals have between lifestyle, health, and sleep. We aim to provide important insights that can help individuals, employers, and policymakers promote healthier sleep habits and enhance the quality of life for the modern workforce.

1.2   Objectives

- To analyze the sleep habits of working adults.
- To identify factors influencing the sleep quality and duration of working adults.
- To examine the impact of sleep on job performance.

- To recommend strategies for enhancing the quality of sleep for adult workers.

1.3   Research question

What are some measures that can be used to improve the quality of sleep and general well-being of working adults, and how do these factors influence lifestyle choices and sleep patterns?

1.4   Limitation of the study

The study's sample size of 374 includes a good representation of main occupations, but it does not provide a comprehensive view of the population, as a result, the findings may not be applicable to a broader population.

2 Literature review

Recent years have seen a notable increase in interest in the connection between working individuals' sleep patterns and their lifestyle and overall health. As an essential component of everyday living, sleep is critical to preserving both physical and mental health. Stress from the workplace, erratic work schedules, and lifestyle decisions are just a few of the many obstacles that working adults frequently encounter and which might affect their sleep cycles (Yeo et al., 2022). Through an examination of the physiological, psychological, and behavioral facets of this dynamic relationships, this literature review seeks to provide a thorough understanding of how working adults' sleep patterns impact their health and way of life.

2.1   Physiological Impact of Sleep Habits on Health

The physiological impact of sleep habits on working people' health is one of the most important factors to consider. According to (Alhola & Polo-Kantola, 2007), inadequate sleep has been linked to a number of health issues, including as obesity, diabetes, cardiovascular disease, and weakened immune systems. Investigating the physiological effects of sleep habits in this population is crucial since the cumulative effect of chronic sleep deprivation might have long-term health ramifications.

2.2   Psychological Effect of Sleep Patterns on Mental Health

Working individuals' mental health is also greatly impacted by their sleep patterns. Reduced cognitive function, anxiety, depression, and elevated stress levels have all been related to sleep deprivation (Simon et al., 2020). Workplace pressures and other stresses of modern living can cause sleep abnormalities, which can exacerbate psychological well-being problems (James et al., 2017). Understanding the psychological effects of sleep patterns on working adults and the ensuing implications for their general lifestyle is crucial to addressing these worries.

2.3   Behavioral Impact on Lifestyle

Sleep patterns and lifestyle decisions—such as food, exercise, and social interactions—are closely related. Reduced motivation for physical activity and poor nutritional choices have been linked to short sleep duration(Hirshkowitz et al., 2015). According to (Janssen et al., 2018) creating successful interventions and encouraging working individuals to lead healthier lifestyles, it is imperative to comprehend the behavioral components of sleep habits.

2.4   Conclusion

The literature review emphasizes the complex relationship of working individuals' sleep patterns, health, and lifestyle decisions. Sleep deprivation can have significant physiological and psychological repercussions that impact behavior and lifestyle choices. A comprehensive strategy including workplace regulations, public health campaigns, and individual interventions is needed to address this problem. Improving the well-being of working adults requires an understanding of the complex effects sleep has on their health and way of life.

3 Methodology

Various analytical techniques are utilized to accomplish the objectives of the research. The main analysis carried out in this study is the central tendency measurements, taking into account the context and limitations previously discussed. The relationships between a number of variables, such as age and heart rate, stress level and physical activity, sleep duration and quality, were assessed in the study. These were all done in an effort to identify the factors that were most closely linked to sleep disorders.

3.1   Data collection method

To gather data, a standardized questionnaire was distributed to the selected individuals. The questionnaire asked a range of questions including health indicators, sleep patterns, and occupation. The participants were asked questions about their occupation, working hours, and years of experience. They also shared details on their sleeping habits, including the duration, nature, and frequency of their sleep disturbances. The health-related questions addressed BMI, blood pressure, self-reported stress levels, and any history of documented sleep difficulties.

3.2   Measures of central tendency

Through the use of a systematic sampling technique, a representative sample of n= 374 was selected for the study. In order to provide a wide and impartial sample, potential volunteers were selected from a variety of sources, such as community centers, internet job boards, and professional groups. The approach sought to involve workers from a range of industries, including manufacturing, healthcare, and education, by using a wide range of occupational backgrounds, including both white- and blue-collar positions.

3.3 Data Analysis

We analyzed the data using a variety of statistical methods using Excel and Tableau. Descriptive statistics were used to summarize the sample sleep habits across various occupations and demographic parameters, and inferential statistics, like regression analysis and classification, were used to assess the relationships between occupations, sleep habits, and health markers. Significance levels were set at $p < 0.05$ in order to find statistically significant relationships.

3.4 Ethical considerations

Because the research project complies with ethical norms, participants' identity and confidentiality were assured. Each participant gave their informed consent and was made aware that participation was completely voluntary before they completed the questionnaire.

4 Results

4.1   Demographics
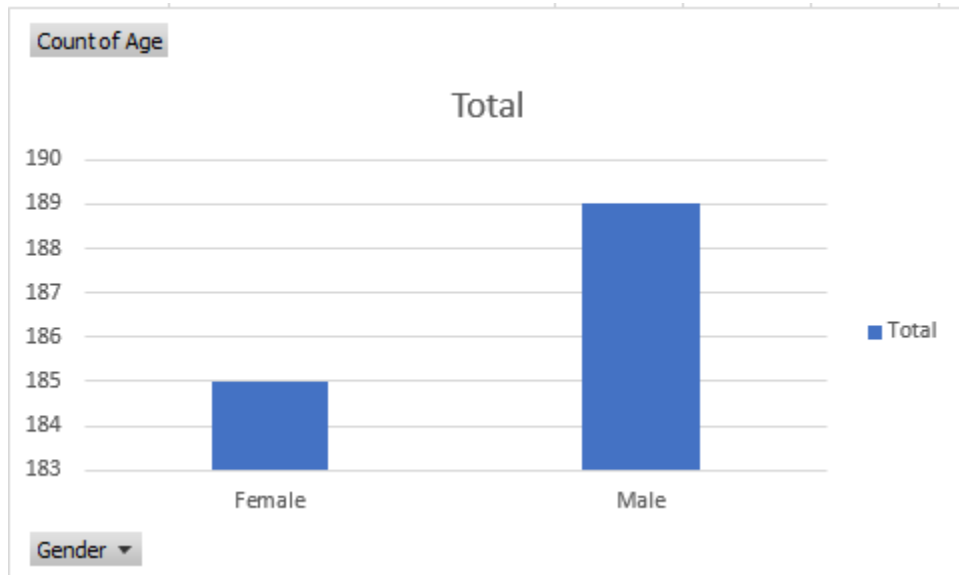
4.1.1   By Gender

Figure 1: gender distribution

There were a total of 374 participants with each gender representing an almost equal number that is 189 males and 185 females. Meaning that, there was no gender bias in this research
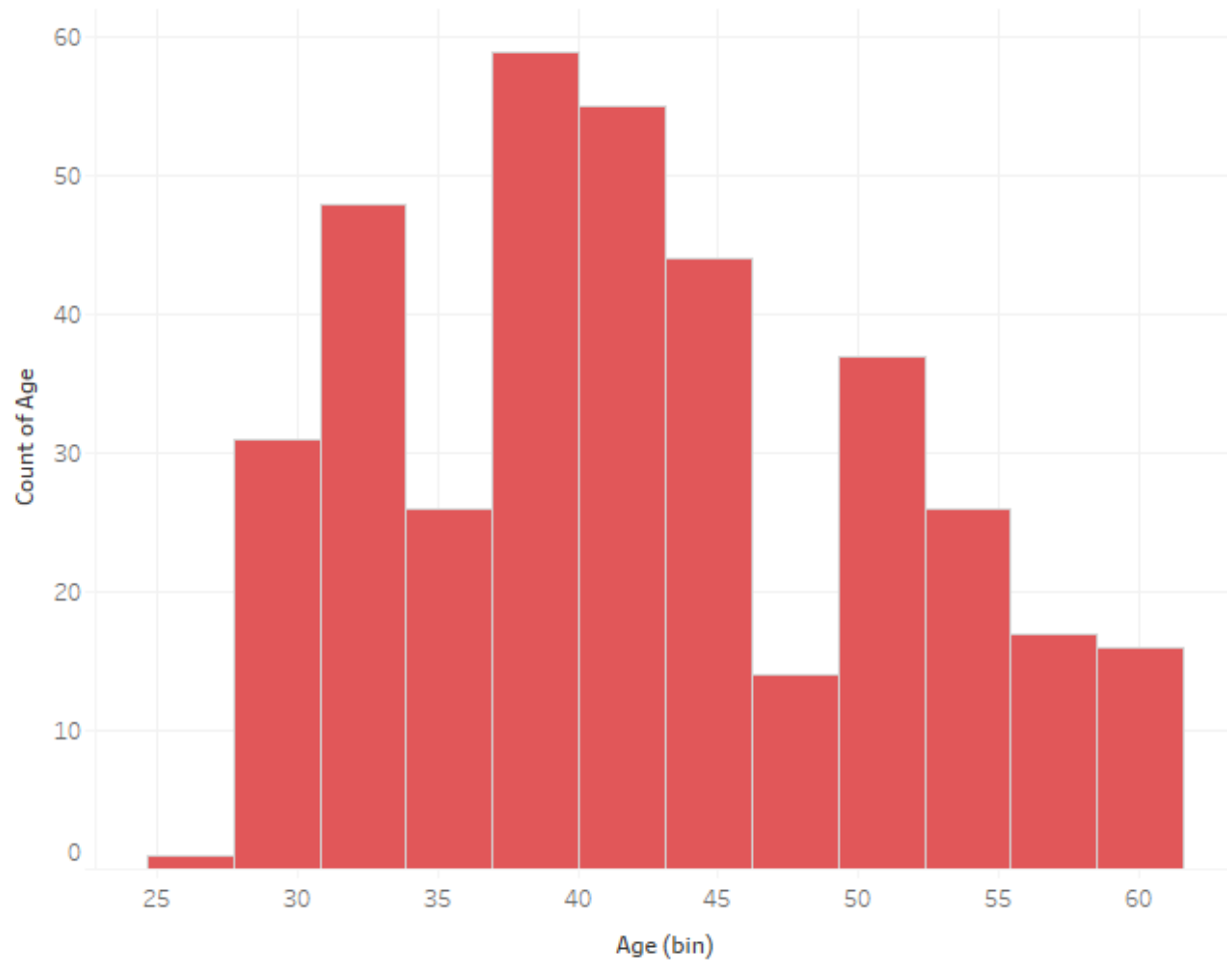
4.1.2   By age

distribution by age

Figure 2: age distribution

Professionals between the ages of 40-45 represented the majority while those between the

ages of 25-30 represented the minority. This would imply that individuals find it hard to get to

jobs in their younger ages compared to when they are in their mid-life. While this is true we can

see another exciting insight where the people who were between the ages of 55-60 being the

second lowest in this sample. Implying that actually most of the people retire at this age.

4.1.3   By Occupation
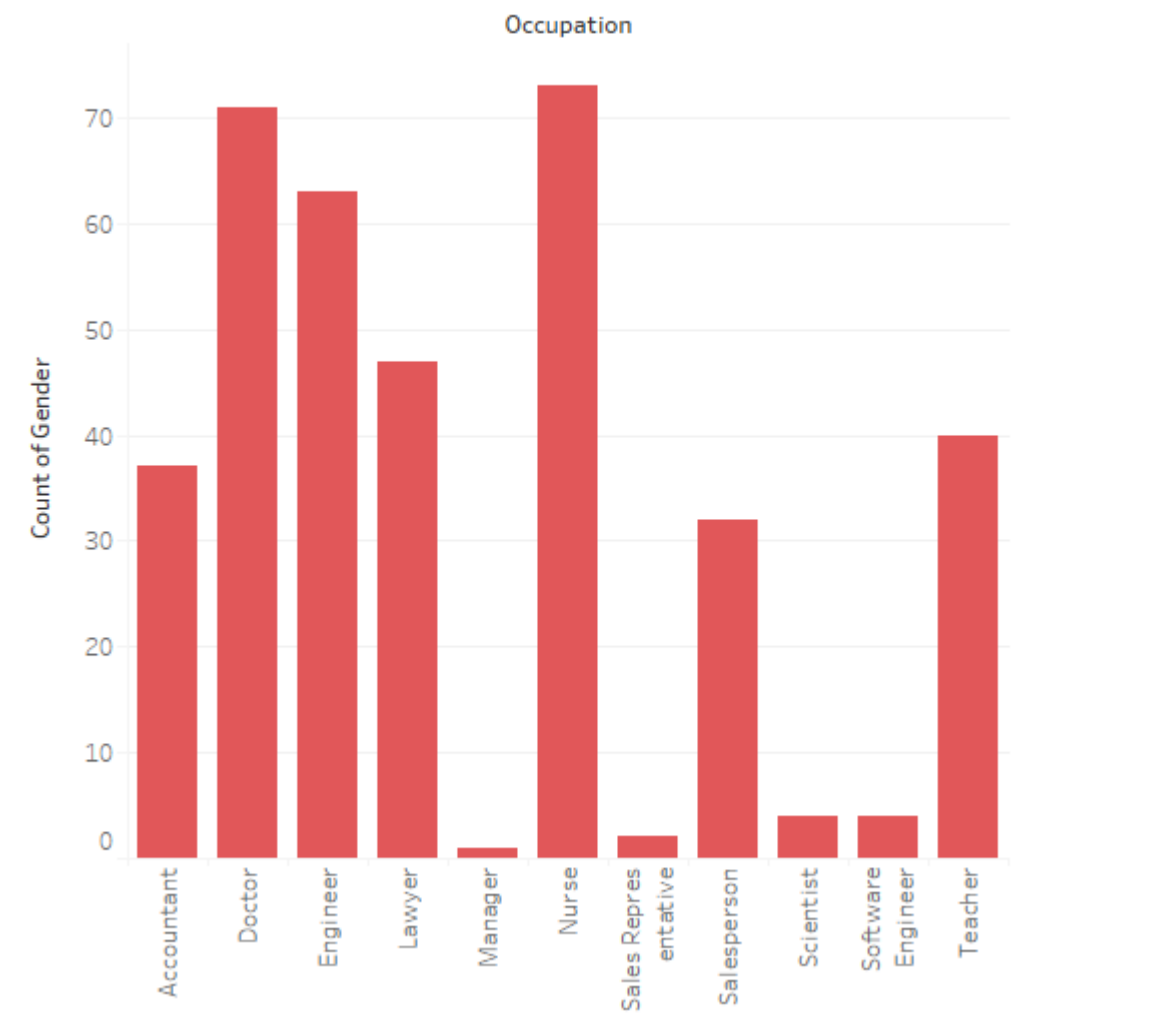
Distribution by occupation

Figure 3: Occupation distribution

There were 73 nurses, 63 engineers, 71 doctors, 37 accountants, 40 teachers, and 47 lawyers among the various occupational groups. 32 salespeople, 4 scientists, 4 software developers, and falling under the management category.

4.1.4   Blood pressure by age

Level blood pressure by age
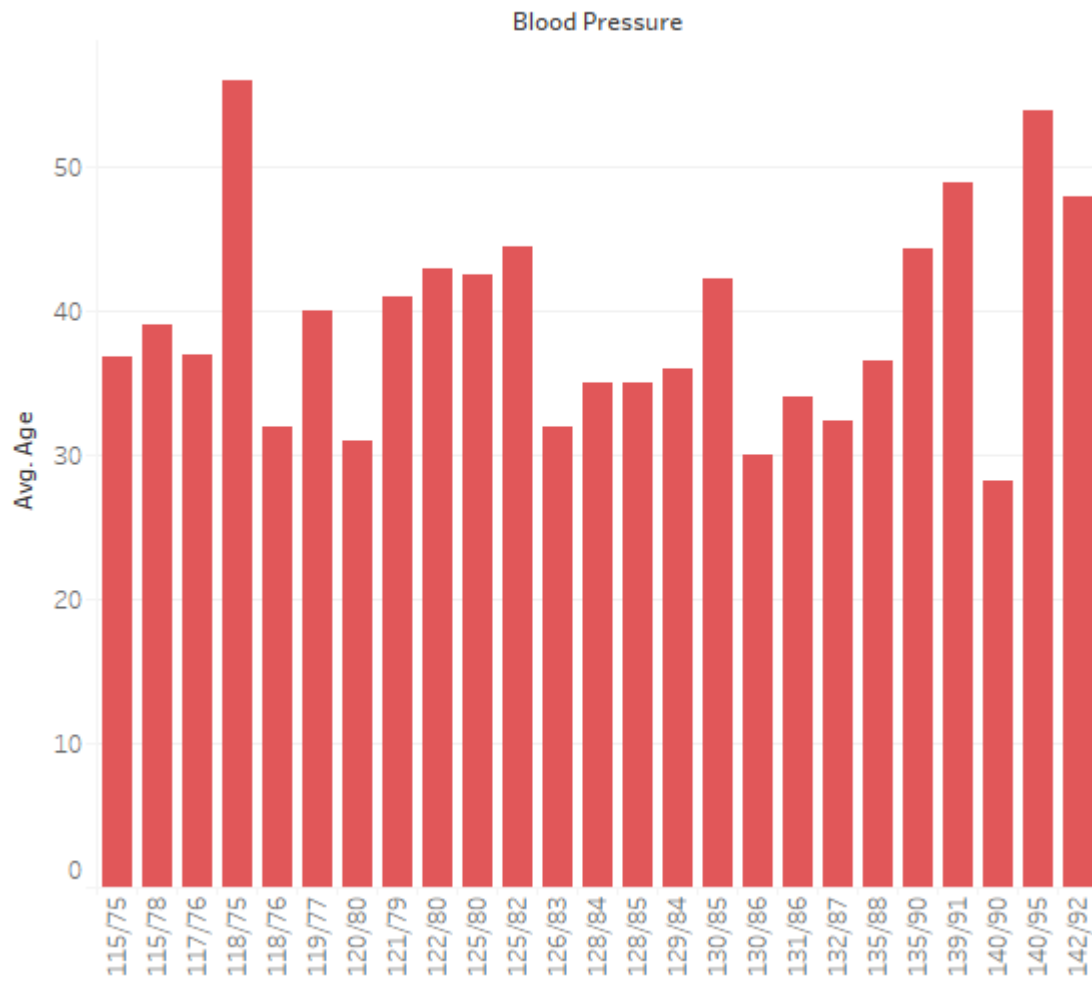
Figure 5: blood pressure vs age

Those who were 55 years of age or older had lower blood pressure than younger people. Ages 45 to 55 were associated with higher reported blood pressure. This might be because these ages are linked to senior positions. Most of the individuals in this age group work as managers or in other high roles.

4.1.5   Average sleep duration per occupation

Avg sleep duration
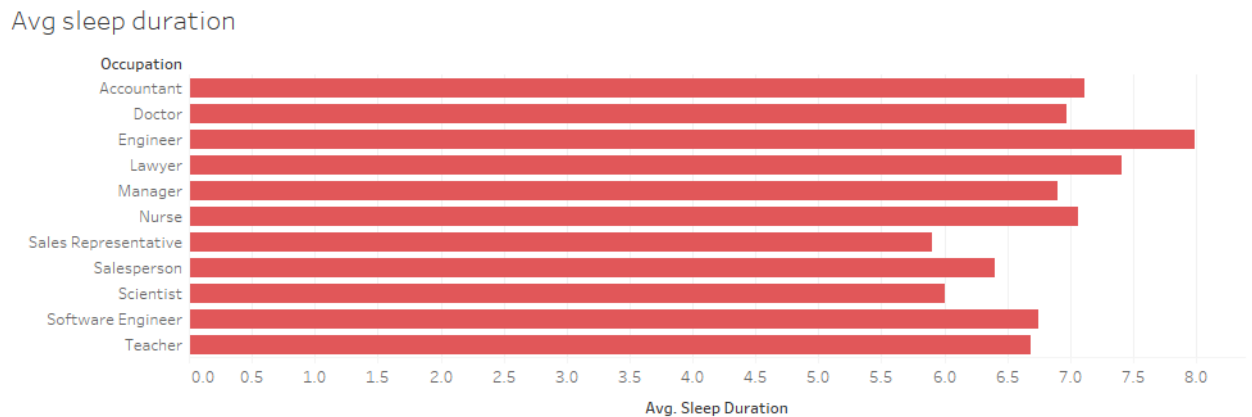
Figure 6: avg sleep per occupation

The average amount of time engineers spent sleeping was 7.9 hours, while sales representatives slept for the least amount of time—just 5.9 hours. This would be because the sales reps are always on toes addressing clients and finding new clients for an organization as opposed to engineers who only do the plan and design work in many occasions.

4.2   Correlation analysis

In this section we wanted to understand the association between variables and determine how strong they were in one leading to the other.

4.2.1 Correlation between physical activity level and stress level

	Physical Activity Level	Stress Level
Physical Activity Level	1	
Stress Level	- 0.03413	1

Figure 7; physical activity vs stress level

The correlation between "Physical Activity Level" and "Stress Level" is roughly -0.034, suggesting a modest and somewhat negative relationship. This suggests that there is a very slight—not particularly strong—tendency for higher levels of physical activity to be associated with marginally lower levels of stress.

4.2.2 Correlation between sleep duration and sleep quality

	Sleep Duration	Quality of Sleep
Sleep Duration	1	
Quality of Sleep	0.883213	1

Figure 8: sleep duration vs sleep quality

The strong Pearson's correlation coefficient of roughly 0.883 between "Sleep Duration" and "Quality of Sleep" indicates a noteworthy association between the two variables. This

positive correlation suggests that sleep quality tends to improve significantly with increased sleep length. In other words, knowing the link between higher sleep quantity and higher sleep quality is necessary to comprehend the relationship between these two factors.

4.3   Regression analysis

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.883213
R Square	0.780065
Adjusted R Square	0.779474
Standard Error	0.373642
Observations	374

ANOVA

	df	SS	MS	F	Significance F
Regression	1	184.2007	184.2007	1319.41	2.2E-124
Residual	372	51.9343	0.139608		
Total	373	236.135			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	2.838711	0.119766	23.70209	2.4E-76	2.603207	3.074215	2.603207	3.074215
Quality of Sleep	0.587101	0.016163	36.32369	2.2E-124	0.555319	0.618884	0.555319	0.618884

Figure 9: Regression analysis

Given the two variables, "Sleep Duration" and "Quality of Sleep," there is a substantial positive association (multiple R = 0.883). The R-squared value of 0.780 suggests that over 78% of the variation in sleep quality can be explained by the duration of sleep. This implies that the two variables have a high degree of correlation.

According to the coefficients table, the intercept is nearly 2.839, indicating that 2.839 is the approximate quality of sleep one might expect for a duration of 0. Conversely, the coefficient for "Quality of Sleep" is 0.5871, which means that for every unit improvement in sleep quality, there is a corresponding rise of 0.5871 in the expected sleep duration.

The ANOVA table indicates that the regression is highly significant with a p-value (2.171E-124) and the model's F-statistic of 1319.41 both of which point to a statistically significant model.

5 Recommendations

Based on the results achieved from this study, the following recommendations were drawn:

- Organize lectures and workshops to inform professionals on the importance of obtaining adequate sleep and how it impacts their overall well-being. Give them advice on how to improve the quality of their sleep and educate them on the ways that different lifestyle choices may affect it.

- In order to help employees cope with the demands of their jobs, organizations ought to develop stress management programs. Relaxation techniques, mindfulness, and meditation can all be used to reduce stress.

- Assist employers in offering a work-life balance to their employees. Establish policies that, when feasible, allow for flexible work schedules and remote work to help employees manage their calendars and maintain a healthy work-life balance.

- Organizations ought to devise stress management initiatives to assist staff in managing stress associated with their jobs. There are methods for lowering stress, such as mindfulness, meditation, and relaxation.

6 Conclusion

This research investigated the complex correlation among working persons' sleep patterns, health, and lifestyle. Given their profound effects on both physical and mental health as well as lifestyle decisions, the findings emphasize the necessity of paying attention sleep-related concerns in the modern workforce.

Working individuals must prioritize improving their sleep quality and length due to the physiological effects of their sleep habits on health, including links to obesity, cardiovascular disease, and compromised immune systems. Additionally, a complete strategy to enhance sleep quality and mental health is crucial given the psychological repercussions of sleep patterns, which include decreased cognitive function, anxiety, and sadness.

7   References

Alhola, P., & Polo-Kantola, P. (2007). Sleep deprivation: Impact on cognitive performance. *Neuropsychiatric Disease and Treatment*, *3*(5), 553–567. https://doi.org/10.2147/ndt.s12160203

Hirshkowitz, M., Whiton, K., Albert, S. M., Alessi, C., Bruni, O., DonCarlos, L., Hazen, N., Herman, J., Adams Hillard, P. J., Katz, E. S., Kheirandish-Gozal, L., Neubauer, D. N., O'Donnell, A. E., Ohayon, M., Peever, J., Rawding, R., Sachdeva, R. C., Setters, B., Vitiello, M. V., & Ware, J. C. (2015). National Sleep Foundation's updated sleep duration recommendations: Final report. *Sleep Health*, *1*(4), 233–243. https://doi.org/10.1016/j.sleh.2015.10.004

James, S. M., Honn, K. A., Gaddameedhi, S., & Van Dongen, H. P. A. (2017). Shift Work: Disrupted Circadian Rhythms and Sleep—Implications for Health and Well-being. *Current Sleep Medicine Reports*, *3*(2), 104–112. https://doi.org/10.1007/s40675-017-0071-6

Janssen, M., Heerkens, Y., Kuijer, W., Heijden, B. van der, & Engels, J. (2018). Effects of Mindfulness-Based Stress Reduction on employees' mental health: A systematic review. *PLOS ONE*, *13*(1), e0191332. https://doi.org/10.1371/journal.pone.0191332

Rosa, T., Bellardi, K., Viana, A., Ma, Y., & Capasso, R. (2018). Digital Health and Sleep-Disordered Breathing: A Systematic Review and Meta-Analysis. *Journal of Clinical Sleep Medicine*, *14*(09), 1605–1620. https://doi.org/10.5664/jcsm.7346

Simon, E. B., Vallat, R., Barnes, C. M., & Walker, M. P. (2020). Sleep Loss and the Socio-Emotional Brain. *Trends in Cognitive Sciences*, *24*(6), 435–450. https://doi.org/10.1016/j.tics.2020.02.003

Swanson, L. M., Arnedt, J. T., Rosekind, M. R., Belenky, G., Balkin, T. J., & Drake, C. (2011).

Sleep disorders and work performance: Findings from the 2008 National Sleep

Foundation Sleep in America poll. *Journal of Sleep Research*, *20*(3), 487–494.

https://doi.org/10.1111/j.1365-2869.2010.00890.x

Yeo, H., Lee, J., Jeon, S., Lee, S., Hwang, Y., Kim, J., & Kim, S. J. (2022). Sleep disturbances,

depressive symptoms, and cognitive efficiency as determinants of mistakes at work in

shift and non-shift workers. *Frontiers in Public Health*, *10*.

https://www.frontiersin.org/articles/10.3389/fpubh.2022.1030710