Abstract

This project investigates the impact of sleep on various aspects of lifestyle, including stress levels, physical activity, heart rate, BMI, and the presence of sleep disorders. The analysis was performed using an interactive Power BI dashboard built on cleaned and organized data from Excel. The aim was to understand how sleep duration and quality vary across different occupations and how these variations influence health indicators.

Key observations include that individuals in high-stress occupations, such as Sales Representatives, tend to experience shorter sleep durations and higher stress levels. In contrast, professions like Lawyers report lower stress and longer sleep durations. The analysis also reveals that individuals with Sleep Apnea have the highest average heart rates, suggesting a link between sleep disorders and cardiovascular strain. Furthermore, most individuals fall within the normal BMI category and do not suffer from sleep disorders, although Sleep Apnea is the most common disorder among affected individual.

The dashboard also allows gender-based filtering, offering deeper insights into how sleep-related trends differ between males and females. Overall, the project highlights the significant role of sleep in shaping physical and mental well-being and underlines the need for better sleep practices, especially in high-stress job environments.

Chapter 1

Introduction

Sleep is a crucial component of a healthy lifestyle, affecting both physical and mental well-being. In today's fast-paced world, many people overlook the importance of sleep, leading to a range of health and lifestyle challenges. This project focuses on analyzing how sleep patterns influence different aspects of life, such as stress levels, physical activity, heart health, body mass index (BMI), and the presence of sleep disorders.

To better understand these relationships, we developed an interactive dashboard using Power BI, supported by Excel for data management and Power Query for data cleaning. The dashboard visualizes key health indicators and lifestyle metrics across different occupations and BMI categories, and it also allows users to filter results by gender to explore more specific patterns.The analysis shows that people in high-stress jobs tend to sleep less and have higher heart rates, especially those with sleep disorders like Sleep Apnea. On the other hand, individuals in less stressful roles often enjoy better sleep and lower stress levels. The data also reveals that most people in the dataset fall into the normal BMI category and do not suffer from any sleep disorders, though Sleep Apnea is the most common among those who do.

This study aims to raise awareness of the strong connection between sleep and lifestyle factors, offering insights that can help individuals, healthcare providers, and employers make informed decisions to promote better sleep and overall well-being.

Chapter 2

Effect of Sleep On Lifestyle

2.1 Objective:

The main aim is to explore how sleep connects with stress, physical health, job types, and sleep disorders. The dashboard also helps us see differences between male and female groups, giving a more detailed understanding of sleep effects on different demographics.

2.2 Tools Used:

- Power BI for creating visuals
- Excel for data handling
- Power Query for cleaning and transforming data

2.3 Dashboard Overview:

This "Effect of Sleep on Lifestyle" dashboard effectively presents the connection between sleep and lifestyle factors using charts and KPIs. At the top, key metrics like Average Heart Rate (71 bpm), Average Daily Steps (7K), and Average Physical Activity (59) offer quick health insights. Interactive gender slicers allow users to filter all data by male or female. The first row of charts shows how stress and sleep vary by occupation, with Sales Representatives having both the highest stress (8.00) and least sleep (5.9 hours), while Lawyers have the lowest stress (5.04) and most sleep (7.4 hours), suggesting a link between job stress and sleep. Another chart shows that people with Sleep Apnea have the highest average heart rate (77.27 bpm), indicating health concerns. The second row includes a BMI chart, showing most people fall in the Normal category (131), and a sleep disorder chart, showing most have no disorder (137), with Sleep Apnea (41) being the most common among those affected. The donut chart and bar charts together highlight trends and allow for gender-specific filtering, making this dashboard a useful tool for analyzing sleep's impact on lifestyle and health.

Figure 2.1: Effect of Sleep On Lifestyle Analysis Dashboard

2.3.1 Top-Level Information (KPIs):

- **Average Heart Rate:** 71 bpm (beats per minute) shows the overall heart health of individuals.
- **Average Steps per Day:** 7,000 shows the general activity level of people.
- **Average Physical Activity Score:** 59 a number that reflects how physically active people are daily.
- **Slicer Filtration:** We can filter all data by selecting "Male" or "Female" to compare gender-based differences in lifestyle and sleep data.

2.4 Charts and What They Show:

Dashboards and visual reports strategically employ a diverse array of charts to transform complex data into easily digestible visual insights, with the choice of chart type depending on the data's nature and the message's intent. Bar and column charts excel at comparing discrete categories, while line charts are ideal for visualizing trends over time, and pie or donut charts illustrate parts of a whole. Scatter plots reveal relationships between numerical variables, histograms show data distribution, and area charts emphasize cumulative changes, while gauges and KPIs provide quick performance summaries. Furthermore, tables offer precise numerical details, tree maps visualize hierarchical data as nested rectangles, and heatmaps use color intensity to identify patterns, all collectively enabling quick comprehension and informed decision-making within a well-designed, often interactive, data presentation.

2.4.1 Average Stress by Occupation:

A bar chart to visually compare the average stress levels across different occupations, making it easy to see which jobs are more or less stressful. The chart reveals that Sales Representatives have the highest average stress level at 8.00, while Lawyers report the lowest at 5.04. A bar chart is used here because it effectively displays categorical data and allows for quick comparison between job roles. The insight suggests that people in sales roles may require targeted support, such as stress management or sleep improvement strategies, due to the higher stress they experience.

This bar chart shows the average stress level for different job roles.

- Sales Representative (8.00)
- Lawyer (5.04)
- Jobs in sales tend to be more stressful than others. People in these roles may need better stress management or sleep support.

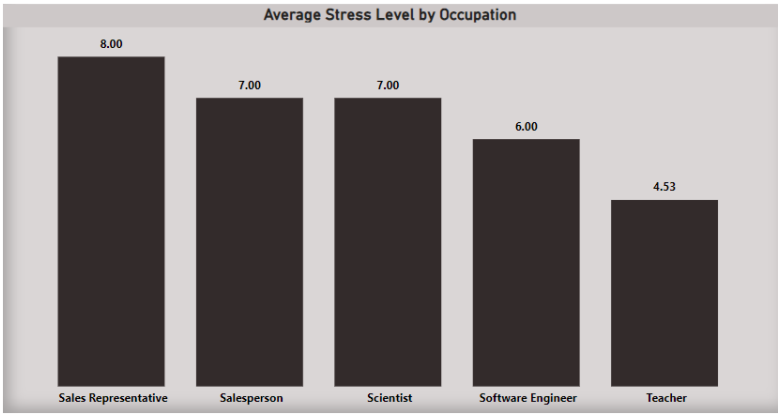

Figure 2.2: Average Stress Level by Occupation

2.4.2 Average Heart Rate by Sleep Disorder:

This chart uses a bar chart to compare the average heart rates of people with different sleep conditions, clearly showing variations between groups. It highlights that individuals with Sleep Apnea have the highest average heart rate at 77.27 bpm, while those without any sleep disorders have the lowest at 69.90 bpm. A bar chart is ideal for this data because it allows for easy comparison between distinct categories (sleep conditions) and emphasizes the differences in heart rate. The insight suggests that Sleep Apnea may strain the heart, reinforcing the importance of quality sleep for maintaining cardiovascular health.

This chart compares average heart rates for people with different sleep conditions.

- **Highest Heart Rate:** People with Sleep Apnea (77.27 bpm)

- **Lowest Heart Rate:** People without any disorder (69.90 bpm)
- **Insight:** Sleep Apnea can cause stress on the heart, which may lead to heart.

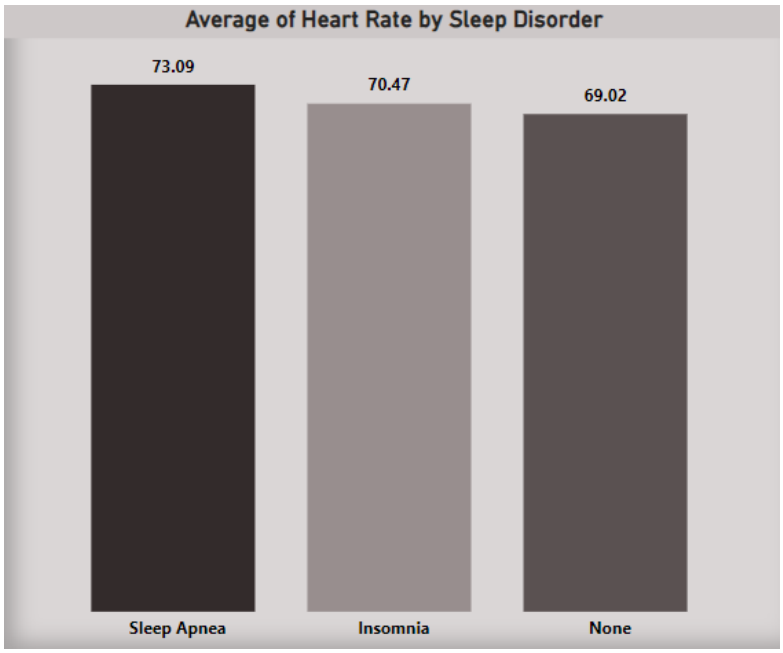

Figure 2.3: Average of Heart Rate by Sleep Disorder

2.4.3 Average Sleep Duration by Occupation:

This chart uses a bar chart to show the average sleep duration across different job types, making it easy to compare how much people sleep based on their profession. It shows that Lawyers get the most sleep at 7.4 hours, while Sales Representatives get the least at 5.9 hours, suggesting that job stress and workload may affect sleep. A bar chart is ideal here because it clearly displays categorical comparisons. The insight highlights that high-stress jobs are linked to less sleep, which can lead to health issues and lower productivity, stressing the need for better sleep habits and stress management in demanding careers. Shows how much sleep people get based on their job type.

- **Most Sleep:** Lawyers (7.4 hours)
- **Least Sleep:** Sales Representatives (5.9 hours)
- **Insight:** People with high-stress jobs tend to sleep less. Less sleep can lead to lower productivity and poor health.

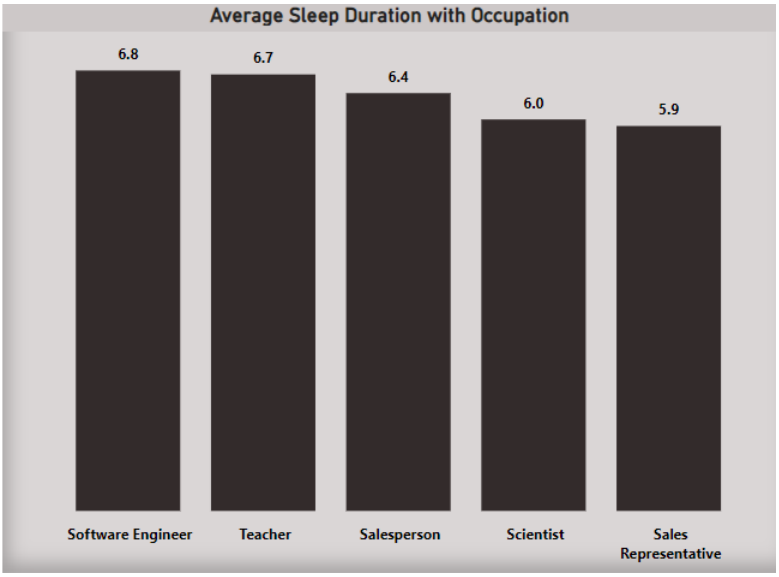

Figure 2.4: Average Sleep Duration with Occupation

2.4.4 BMI Category (Tree map):

This chart uses a bar chart to show the number of people in different BMI (Body Mass Index) categories, helping to visualize how the population is spread across weight ranges. The most common category is Normal BMI, with 131 people, followed by Overweight (42), Obese (9), and Normal Weight (7)—the last of which may be a duplicate of the Normal category, indicating a need for data refinement. A bar chart is appropriate here because it effectively presents categorical data and allows for easy comparison between group sizes. This visual makes it clear that most individuals fall within a healthy BMI range. However, the presence of overlapping or redundant categories can confuse interpretation and reduce the clarity of the insights. To improve the chart's usefulness and accuracy, it would be helpful to clean up the categories by merging duplicates and ensuring consistency in labeling. This would make the data easier to understand and more reliable for identifying trends related to weight and health. This chart shows the number of people in different BMI (Body Mass Index) groups.

- **Normal BMI:** 131 people (most common)
- **Overweight:** 42 people
- **Obese:** 9 people
- **Normal Weight (Maybe a Duplicate of 'Normal'):** 7 people
- **Insight:** Most people fall into the healthy BMI range. However, the chart can be improved by merging similar categories for better clarity.

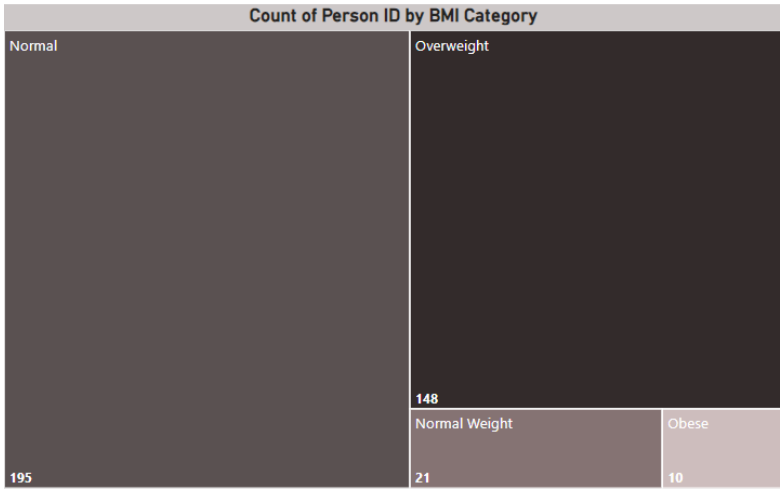

Figure 2.5: Count of Person ID by BMI Category

2.4.5 Sleep Disorders by BMI Category:

This chart uses a bar chart to show the number of people in each BMI category, which helps compare group sizes but limits insight. While the bar chart is good for showing totals, it doesn't reveal how many people in each group have sleep disorders. To improve clarity, the chart could use stacked or grouped bars to show both the overall population and the number with sleep issues in each BMI category, allowing for a more detailed and meaningful analysis.

This chart currently shows the number of people in each BMI group, but it does not clearly show how many have sleep disorders in each group.

- **Insight:** It needs improvement to show the number of sleep disorder cases within each BMI group to get better insights.

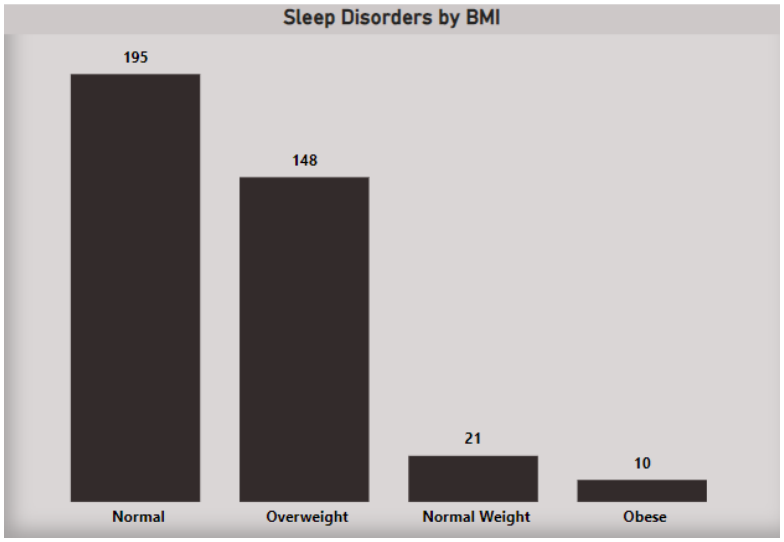

Figure 2.6: Sleep Disorders by BMI

2.4.6 Sleep Disorder Distribution (Donut Chart):

This chart uses a donut chart to display the distribution of sleep disorders, showing how many people fall into each category, including those with no disorder, Sleep Apnea, and Insomnia. A donut chart is used here because it effectively shows proportions of a whole, making it easy to visualize the relative sizes of each group. The chart reveals that most people (137) have no sleep disorder, while among those who do, Sleep Apnea is the most common, affecting 41 people, followed by Insomnia with 11 people. This visual helps highlight the need for greater awareness, diagnosis, and treatment of sleep apnea, given its higher prevalence compared to other disorders.

Shows how many people have sleep disorders and what type they have.

- **No Disorder:** 137 people
- **Sleep Apnea:** 41 people
- **Insomnia:** 11 people
- **Insight:** Most people have no sleep disorders. Among those who do, Sleep Apnea is the most common. This shows a need for awareness and treatment of sleep apnea.

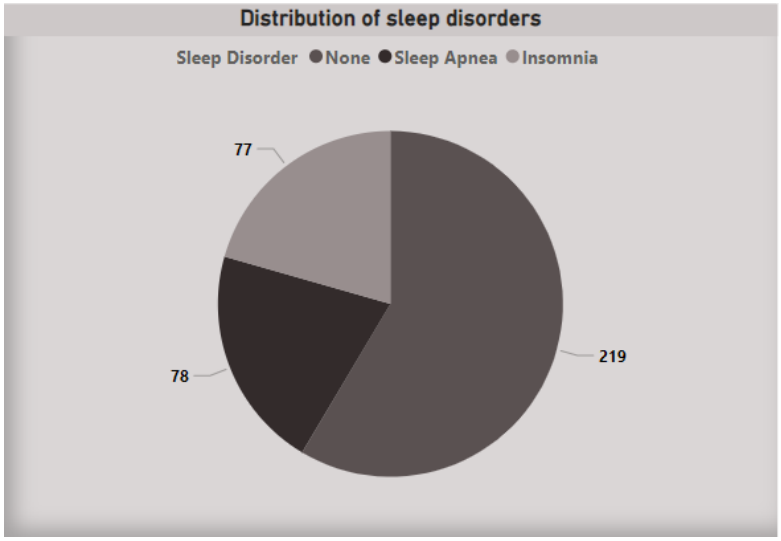

Figure 2.7: Distribution of sleep disorders

Conclusion

This report provides valuable insights into the relationship between sleep, stress, health, and occupation, highlighting how these factors are closely connected. It shows that individuals working in high-stress jobs, such as sales, tend to get less sleep, which can lead to negative health outcomes like elevated heart rates. The data also reveals that people with sleep disorders, such as Sleep Apnea or Insomnia, often experience additional health risks, further emphasizing the importance of quality sleep. By examining patterns in sleep duration, heart rate, BMI, and stress across different groups, the report helps uncover how job demands and health conditions influence overall well-being. These findings are useful for health professionals, researchers, and organizations, as they can inform better decisions around workplace wellness programs, stress management, and preventive health strategies, ultimately supporting healthier lifestyles and more productive work environments.

This project shows the importance of good sleep for a healthy and productive life. Proper rest, balanced work life, and health awareness can help improve overall well-being.