

Presenting by Group-1

Employee Productivity Analysis

Sector: Health

Team ID: G-1

Faculty Mentor: Satyaki Das



Why It Matters?

Business Context & Objective

01. Sector Context

- Employee health directly impacts productivity, performance, and retention.
- HR leaders and management teams need clear, data-driven insights to manage workforce well-being and efficiency.

02. Problem Statement

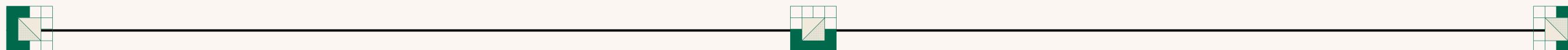
- Which health and lifestyle factors (e.g., stress, sleep, workload) most significantly affect employee productivity?

03. Objective

- Identify the key health factors driving productivity outcomes
- Detect employees at risk of burnout or performance decline
- Enable HR to take data-driven actions to improve workload balance and overall well-being

Source to Sink

Data Engineering



Source

- Name: Employee_Health_Data
- Size: 10,501 rows x 15 columns
- Time Period: 2015–2024

Dictionary

- Employee ID
- Stress Level
- Sleep Hours
- Work Hours
- Productivity Score
- Health Risk Category

Cleaning

- Handled missing values (Nulls)
- Treated outliers in key numeric fields
- Standardized categorical labels & formats

What are we measuring?

- Average Productivity Score – Overall workforce performance level
- Productivity Gap (%) – Estimated productivity loss
- High Health Risk Rate – % of employees at elevated health risk
- Overwork Exposure Rate – Workload pressure indicator
- High Stress Rate – Stress prevalence across workforce
- Sleep Deficit Rate – Impact of insufficient rest on employees

Why these KPIs?

How do they link to the problem?

- Measure both productivity outcomes and health drivers
- Quantify the impact of stress, sleep, and workload on performance
- Provide clear, actionable metrics for HR decisions
- Enable early identification of burnout and performance risk



1

Stress is the strongest negative productivity driver, representing the highest performance risk variable.

2

Increased work hours do not translate into proportional output, indicating efficiency loss beyond optimal thresholds.

3

Sleep adequacy correlates with performance stability, suggesting recovery is a productivity enabler.

4

High health-risk segments show measurable performance gaps, justifying targeted intervention.

5

Physical activity has limited direct impact, indicating secondary influence compared to stress and workload.

6

Productivity stability is highest under balanced workload and recovery conditions, reinforcing the value of sustainable work design.

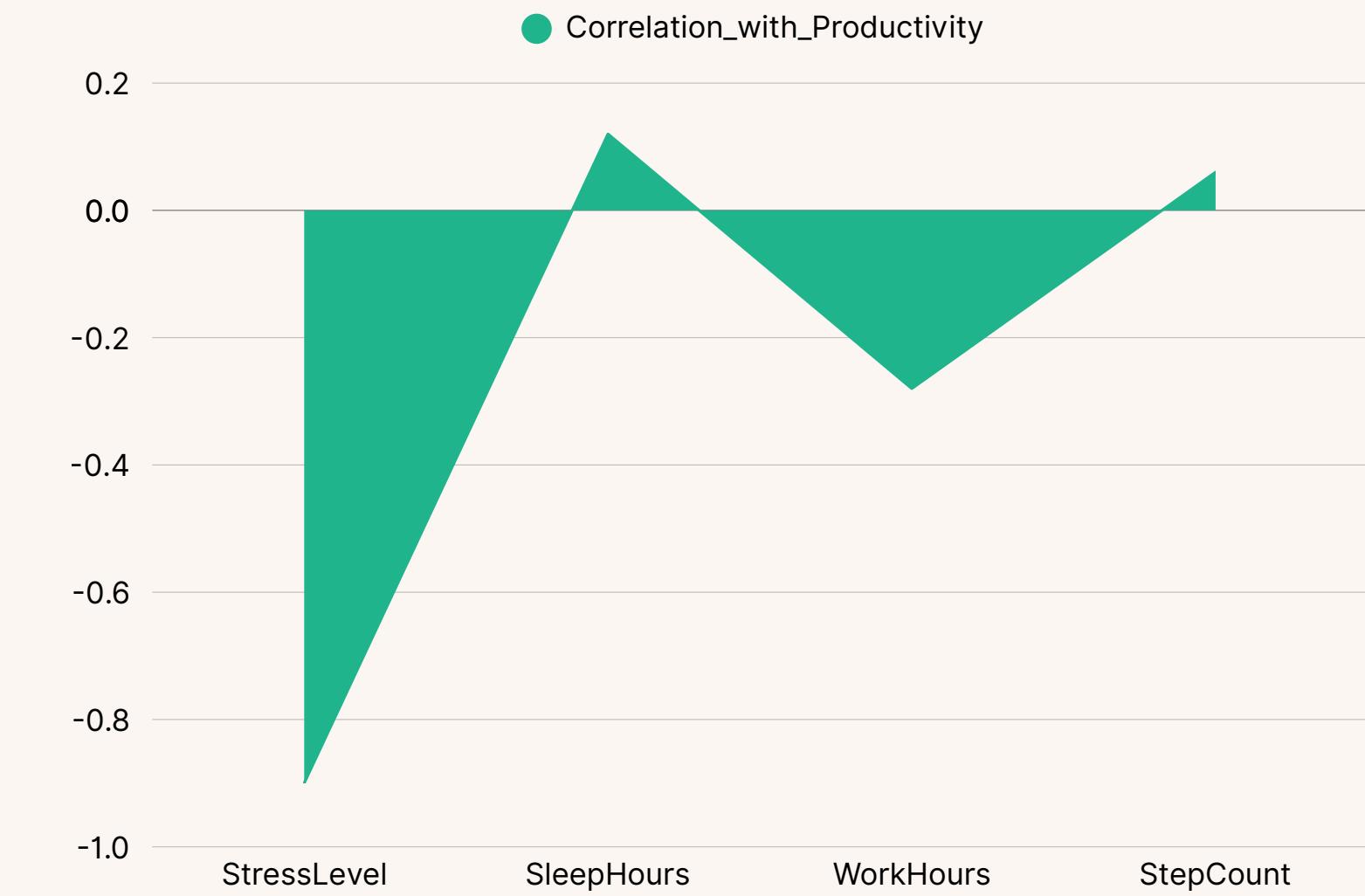
MAJOR OBSERVATIONS

MAPPING OUR THOUGHTS

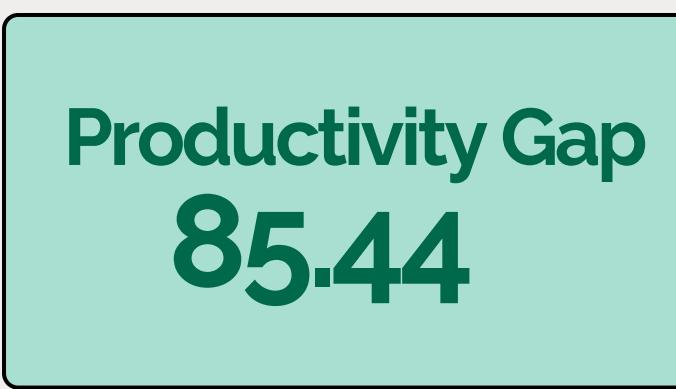
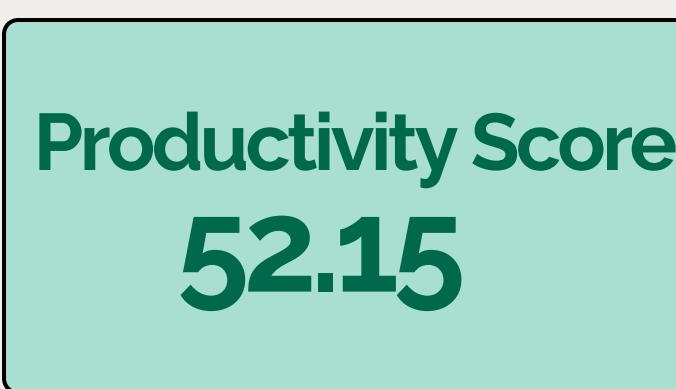
Advanced Analysis

Segmentation Analysis:

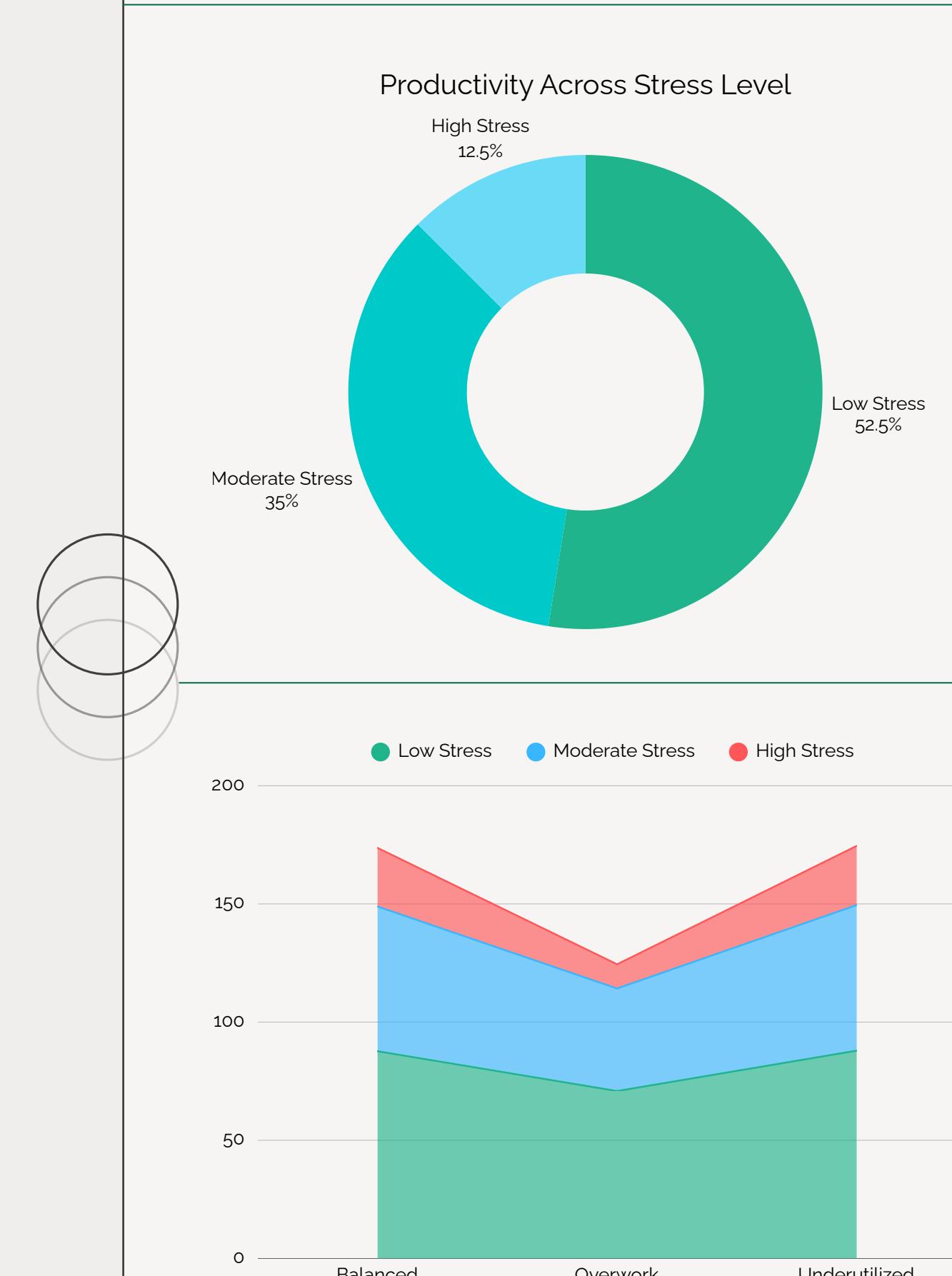
- Productivity declines sharply under combined High Stress + Overwork
- Balanced work-hour employees outperform overwork consistently across stress levels
- Low-stress group maintains strong productivity regardless of sleep variation
- Health risk group shows structural performance gap (~7 vs ~54 average)



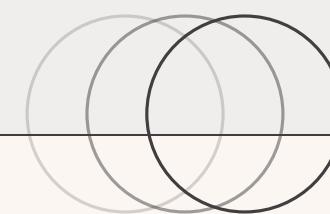
Key KPIs



Employee Productivity Dashboard



Recommendations



STRESS & WORKLOAD GOVERNANCE

Integrate stress monitoring into performance reviews, conduct periodic workload audits, and hold managers accountable for reducing high-stress exposure (33%) and overwork risk (34%).

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SUSTAINABLE WORK DESIGN

Redesign capacity planning to shift employees from overwork to balanced categories and implement structured recovery policies to address sleep deficit (36%).

PROACTIVE RISK MANAGEMENT

Establish an early-warning system for the 4% high-risk group by linking health indicators with continuous productivity tracking and targeted intervention plans.

So What ?

Impact & Value

The “So What?”

- Recover productivity loss by addressing stress and overwork
- Improve efficiency through optimized workload distribution
- Reduce long-term costs by proactively managing burnout and performance risk.

Why Approve This?

- Enables proactive, data-driven HR decisions
- Targets the root causes of productivity loss
- Supports sustainable productivity and long-term organizational growth

Limitations & Next Steps

Limitations

- Limited sample size / time range may affect generalizability
- Self-reported health metrics may introduce bias
- Potential missing variables (e.g., role type, team dynamics)

Next Steps

- Expand dataset across departments and longer time periods
- Integrate real-time performance and attendance data
- Build predictive models for early burnout detection
- Implement and measure impact of targeted wellness interventions



Presented by Group-1

Thank you very much!

.....The End

