ANALYZING WORKPLACE STRESS LEVELS WITH PSPP ANOVA AND DESCRIPTIVE STATISTICS

1. Overview

Client:

A multinational technology firm with over 2,000 employees across five departments (IT, Sales, HR, Finance, and Support)

Objective:

To analyze employee stress levels by department and job seniority using PSPP, and identify which groups experienced the highest stress. The purpose was to inform mental health resource planning and targeted interventions.

2. Background

The organization initiated an internal well-being survey after reporting increased burnout and turnover. Initial anecdotal reports indicated differences in stress across teams, but leadership required evidence-based insights. PSPP was chosen for its cost-effective statistical capability.

3. Data Summary

Dataset:

Anonymous internal survey of 420 employees (85% response rate)

Key Variables:

Variable	Type	Description
Stress_Score	Continuous	Self-reported (0–10 scale, 10 = highest stress)
Department	Categorical	IT, Sales, HR, Finance, Support
Job_Level	Categorical	Junior, Mid-Level, Senior
Remote_Work	Binary	Yes / No
Work_Hours_Per_Week	Continuous	Actual average weekly working hours

4. Methodology

Software Used:

PSPP (v1.6.2)

Workflow:

1. **Data Cleaning:**

   o Imported spreadsheet and ensured correct coding for categorical variables

   o Checked normality of Stress_Score via histogram and skewness in PSPP

   o Detected and addressed one extreme outlier (score = 0)

2. **Descriptive Statistics:**

   o Used DESCRIPTIVES command for mean, SD by group

   o Created grouped bar charts by Department and Job_Level

3. **One-Way ANOVA in PSPP:**

   o Analyze → Compare Means → One-Way ANOVA

   o DV: Stress_Score, Factor: Department

   o Post-hoc comparison: Tukey test via syntax adjustment

4. **Additional Analysis:**

   o Two-way ANOVA (Department × Job_Level)

   o Correlation check between Work_Hours_Per_Week and Stress_Score (Pearson)

5. Key Results

Factor	F-Statistic	p-value	Interpretation
Department	4.73	0.002	Statistically significant difference in stress levels
Job_Level	2.61	0.048	Senior employees reported higher stress
Work_Hours Correlation	r = +0.52	<0.001	Strong positive relationship with stress

Highest Stress Groups	Support Dept., Senior Roles	—	Most at-risk groups identified

Post-hoc (Tukey):

- Support vs. IT: **p = 0.004**

- Sales vs. Finance: **Not significant**

- Senior vs. Junior: **p = 0.041**

6. Visual Outputs (via PSPP & LibreOffice):

- Department-wise mean stress bar chart

- Two-way ANOVA interaction plot

- Correlation scatterplot: Work hours vs. Stress score

- Boxplot: Job level vs. stress

7. Deliverables

- Clean .sav and exportable CSV dataset

- Statistical report (16 pages) including:

    o Descriptive stats by department and job level

    o Full ANOVA tables and post-hoc results

    o Visualizations with commentary

- 4-slide executive briefing:

    o Priority areas for intervention

    o Comparison of stress by structural role

    o Recommendations for work-life balance improvement

8. Client Outcome

- Launched **targeted stress reduction initiative** in Support Department

- Piloted **weekly workload audits** for senior staff

- Incorporated ANOVA insights into 2024 mental wellness budget proposal

9. Strategic Value Delivered

- Provided **empirical basis for mental health investment decisions**

- Enabled **data-driven prioritization of internal wellness efforts**

- Demonstrated **PSPP as a viable alternative for HR analytics**