ANALYZING THE RELATIONSHIP BETWEEN STUDY HOURS AND ACADEMIC PERFORMANCE USING JAMOVI

1. Background and Objective

A UK university wanted to analyze whether students' weekly study hours significantly affect their academic performance, as measured by self-reported GPA. The institution aimed to inform academic support initiatives and time-management workshops by understanding this relationship quantitatively.

Research Question:
Does the number of study hours per week predict GPA among university students?

2. Data Description

- **Sample Size:** 150 undergraduate students

- **Data Collection Method:** Structured online survey

- **Variables:**

  o **GPA** (scale: 0.0 – 4.0) – continuous, dependent variable

  o **Study Hours** (number of self-reported hours per week) – continuous, independent variable

  o **Faculty** (Science, Arts, Business) – categorical, control variable

  o **Gender** (Male, Female, Non-binary) – categorical, control variable

3. Jamovi Analysis Workflow

Step 1: Data Cleaning and Setup

- Imported Excel dataset into Jamovi

- Converted categorical variables using Jamovi's factor setup

- Checked for missing data and normality using descriptive statistics

Step 2: Descriptive Statistics

- Summary of GPA: Mean = 3.25, SD = 0.42

- Summary of Study Hours: Mean = 18.6, SD = 5.9

- Histogram and boxplots created to visualize distributions

Step 3: Correlation Analysis

- Pearson's r = **+0.46**, **p < 0.001** → moderate positive correlation

Step 4: Linear Regression in Jamovi

- Dependent: GPA

- Predictor: Study Hours

- Controls: Faculty (dummy coded), Gender

Model Output:

Predictor	Coeff. (B)	Std. Error	t-value	p-value
Intercept	2.71	0.19	14.3	< .001
Study Hours	**+0.028**	0.0058	4.83	< .001
Faculty (Arts)	–0.12	0.09	–1.3	0.19
Faculty (Bus.)	–0.07	0.10	–0.7	0.47
Gender (M)	+0.02	0.08	0.25	0.80

- **Adjusted R² = 0.21**

4. Interpretation of Results

The linear regression shows that **each additional hour of study per week is associated with a 0.028-point increase in GPA**, holding faculty and gender constant. The relationship is statistically significant ($p < .001$), though the model explains a modest proportion of GPA variance.

Control variables such as faculty and gender did not show significant effects in this model, indicating that study hours are the strongest predictor in this dataset.

5. Final Report Summary Provided to Client

- Executive Summary with findings

- Visualizations (scatterplot, regression line, distribution plots)

- Regression table formatted for academic reporting

- Interpretation written in layman's terms for non-statistical stakeholders

- Jamovi output files and editable .omv project file

6. Impact and Use

- **Institutional Decision-Making:** Used by the university's learning support center to design time-management workshops

- **Academic Relevance:** Suitable for educational psychology and higher education studies

- **Student-Focused Insights:** Clear takeaway that increased structured study time can benefit academic results